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ESSAYS

ON THE EFFECTS OF

IODINE IN SCROFULOUS DISEASES.

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MANCHESTER MEDICAL SOCIETY

ESSAYS

ON THE EFFECTS OF

IODINE IN SCROFULOUS DISEASES;

INCLUDING

AN INQUIRY INTO THE MODE OF PREPARING IODURETTED BATHS.

TRANSLATED FROM THE FRENCH OF M. LUGOL,

PHYSICIAN TO THE HÔPITAL ST. LOUIS,

By W. B. O'SHAUGHNESSY, M. D.

WITH

AN APPENDIX BY THE TRANSLATOR,

CONTAINING

A SUMMARY OF CASES TREATED WITH IODINE, EITHER SIMPLE OR COMBINED WITH OPIUM, MERCURY, OR LEAD, AND DIRECTIONS FOR PREPARING THE IODURETS OF THESE METALS, AND FOR DETECTING THE ADULTERATIONS OF IODINE AND THE HYDRIODATE OF POTASH.

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TRANSLATOR'S PREFACE.

The greater part of the subsequent pages consists of a translation, condensed in some unimportant particulars, of three Essays,* published at short intervals by M. Lugol, one of the physicians to the Hôpital St. Louis.

The important nature of their contents is sufficiently attested by the warm eulogies of MM. Magendie, Serres, and Dumeril, in their Reports on the Essays to the Academie Royale des Sciences; by the almost unanimous testimony of the French medical press; and by the vote of the

* 1. Mémoire sur l'Emploi de l'Iode dans les Maladies Scrofuleuses, par J. G. A. Lugol, Médecin de l'Hôpital St. Louis. 8vo. pp. 78. Paris, June, 1829.

2. Mémoire sur l'Emploi des Bains Iodures, &c. 8vo. pp. 52. Paris, 1830.

3. Troisième Memoire sur l'Emploi de l'Iode dans les Maladies Scrofuleuses, &c. 8vo. pp. 219. Paris, May, 1831.

£ 240.

Institute, by which M. Lugol, at the sitting of July 1831, was awarded a prize of 6000 francs, as a recompense for the researches described in the following pages.

M. Lugol is not, it is true, the first who has applied iodine to the treatment of scrofula; other, and equally distinguished men, in Great Britain especially, have also investigated its virtues in this department of therapeutics. I cannot, however, avoid the conviction, that no sufficiently conclusive results have yet been obtained in this country,—a circumstance obviously dependent on the general regulations of our hospitals, the majority of which, either from the actual exclusion of scrofulous diseases, or the limited period allotted to the treatment of any individual, have not afforded a sufficiently extensive field for the successful investigation of this interesting subject.

I now submit to the profession the gratifying results of the labours of M. Lugol; who, surrounded by every facility that could be desired—in charge of extensive wards exclusively destined for scrofulous cases—no limit being set to their period of treatment—has studiously and successfully availed himself of his peculiar position.

The chief merit of M. Lugol's Essays will, I believe, be found to consist in the precision and skill with which he has investigated the proper forms and doses in which iodine should be administered. Next to this, his constancy and patience in the routine of treatment will perhaps be estimated. On both these points mainly depend the numerous and astonishing successes described in the subsequent cases, and which, authenticated as they are by the personal testimony of some of the most distinguished physicians in the world, are calculated at the same time to afford sincere pleasure to the medical philanthropist, and well-founded hope to the subjects of this hereditary evil.

When I speak of the astonishing successes M. Lugol has obtained, I by no means wish to disguise my belief that the amelioration ascribed to the agency of iodine, may in a few instances have depended either on the spontaneous changes which sometimes originate in the constitutions of individuals, or on the temporary interval of improvement which the revolution of the seasons not unfrequently brings round. In some of the cases subsequently detailed as examples of success, I also feel confident that a relapse will eventually occur. But admitting all this (and

the concession does not extend to more than a small fraction of the cases), where is the competent practitioner, who, after a perusal of the following pages, will refuse to admit, that M. Lugol's treatment has in numerous examples rescued the patient from the alternative of the knife or the coffin, and in the majority has at least effected decided, though perhaps temporary, improvement?

As for my own part in the present production, it is too insignificant to require any lengthened observation. In the version I have made I have only endeavoured to adhere to the Author's facts, freely condensing whatever appeared exuberant in his descriptions or superfluous in his details. In the arrangement of the Sections, I have made one or two transpositions, to which it is unnecessary more particularly to allude.

In the Appendix I have added a summary of a number of cases occurring in the practice of other eminent continental surgeons and physicians, and in which iodine was used either in the simple state or combined with opium, mercury, or lead. The sections in the Appendix, on the ioduret of lead, and on the adulterations of iodine and the hydriodate of potash, should especially attract the

attention of practical men. To the effects of the falsification of iodine and its compounds, M. Lugol has not alluded, perhaps because the crime may happily be a stranger to the apothecaries of Paris. In this country, however, we must be on our guard against its effects, for negligence in this particular will effectually nullify all the patience or precision we can bring to the treatment of this disease.

I also find it necessary to remark, that when I first determined on the publication of this translation, I then entertained the idea of either avoiding professional terms in its pages, or else of appending an explanatory glossary to the same effect. I was inclined to this course by the twofold persuasion, that the true end of medicine is the benefit of the public, and that the more we familiarise the public with the mode of practice of truly scientific men, the more quickly will empiricism be deprived of the patronage it now so extensively possesses. Partly, however, influenced by the advice of a valued friend, and partly apprehensive lest my motives for so unusual a proceeding might be mistaken or calumniated, I have for the present adhered to the ordinary nomenclature of medicine.

In conclusion I have only to express my fervent hope, that the publication in English of the results of M. Lugol's practice, may tend in some degree to banish the idea that scrofula is incurable, from the minds of the patrons of our Asylums for the destitute sick, and may consequently lead to the extension of the benefits of iodine to the poorer classes of the community.

10, Waterloo-place, Albany-road, Camberwell,
London, 1st October, 1831.

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MANCHESTER MEDICAL SOCIETY

ON THE

EFFECTS OF IODINE

IN

SCROFULOUS DISEASES.

PART I.

AUTHOR'S INTRODUCTION.

I COULD with difficulty describe the painful sensations I endured, when, ten years since, I was first appointed Physician to the Hôpital St. Louis. I felt that, however extensive my previous experience might have been, it was not adequate to the successful treatment of the numerous diseases which were daily to become the objects of my care.

It also seemed to me essential to the due discharge of the new function which I was called upon to exercise, that I should undertake some special researches on the discrimination and treatment of those chronic maladies to which, in our days, the too exclusive name of "cutaneous diseases" has been applied. In pursuit of this conviction I first directed my attention to scrofulous affections.

I found additional motives to encourage me in this particular investigation, in the multitudes of patients thus afflicted, in the difficulties with which the subject was encompassed, and in the pity I ever felt for those labouring under an evil too often regarded as utterly incurable, and consequently abandoned to all the misery of their fate.

Of whatever nature and degree of certainty were the ideas I had previously acquired, during many laborious years, concerning the diagnosis of these affections, I was soon forced to admit that the therapeutic trials I had made of the ordinary remedies of the materia medica, were not more satisfactory to me than they had been to my predecessors. I found, also, that my contemporaries experienced a similar want of success; I, therefore, was necessitated to participitate in the common opinion of the incurable nature of scrofulous diseases.

But the natural regret which associates itself with the reflection that the woes of our fellow-creatures are beyond the reach of mitigation, inspired me with the resolution to search diligently after new remedial agents.

With this intention, for two years back, I have sought an antidote for scrofulous maladies, in the new substance termed iodine, in which M. Coindet had already found a successfu remedy for goitrous tumours. In my early essays, my success was, doubtless, of a decided character; but I deemed my object of too serious and elevated an order to permit me to embrace an easy conviction of its having been attained. I therefore repeated the experiments, and multiplied them to such an extent, that I was, at length, fully persuaded of the conclusiveness with which they established the antiscrofulous virtues of iodine. It was then that I commenced my special course of instruction on this class of diseases, and on the new method of treatment, which, though still incomplete, already offered consolation to all scrofulous patients;

a fact which I deemed my duty to lose no time in announcing.

But before I presented my researches to the Royal Academy of Science, I waited until my experiments had been continued for seventeen months, in order to obtain positive proof that there existed no anticipation of the results I communicated. That degree of certainty has now been fully acquired, and my assertions found exact, by M.M. Serres, Magendie, and the learned and illustrious reporter M. Dumeril. These three distinguished individuals, having been appointed commissioners by the Royal Academy, have witnessed, at the Hôpital St. Louis, the several proofs of every thing advanced in my memoir; and they have also kindly examined the materials from which I am preparing a second treatise, which will speedily be published.

ACADEMIE ROYALE DES SCIENCES.

REPORT ADDRESSED TO THE ROYAL ACADEMY OF SCIENCE, ON A MEMOIR BY M. LUGOL ON THE USE OF IODINE IN SCROFULOUS DISEASES.

Read by M. Dumeril.

M.M. Serres, Magendie, and your reporter, proceed to lay before the Academy an account of a Memoir (presented by M. Lugol, Doctor in Medicine) on the Use of Iodine in Scrofulous Diseases.

In the first place, we would remind our hearers that the scrofulous affections, long known under the names of "cold humours," or "the evil," constitute a class of those slow,

unsightly, and often hereditary diseases, which strike despair into whole families, from the absolute rarity of their cure, and from the irremediable light in which they are regarded by the majority of physicians, and by the hospital regulations. Hence, also, the afflicted patients submit themselves to the illusive practices suggested by superstition; for, though medicine has successively tried all the remedies with which she is acquainted (the number, and even the absurd variety, of which attest too strongly the want of a certain method of cure), it must still be confessed, that up to the present time an efficacious mode of treatment remained to be made known.

Sometimes this disease is external and visible, and shows itself under the skin by swellings, which are slowly developed, become softened, burst, and remain ulcerated for a lengthened period, and thus produce callous and incurable scars; it takes its place in the substance of the integuments, which it renders deformed and disgusting; attacks the ears, the eyelids, the nostrils, and the lips, which become horribly tumid, or are corroded to such an extent as utterly to disfigure human nature.

Sometimes, more deeply hidden, the scrofulous habit attacks the bones and their articulations, obstructs the canals which transport the lymph and chyle, or produces in the lungs, and most important organs, tubercles which ultimately soften, and degenerate into purulent centres, thus giving rise to serious morbid alterations in the living economy, which eventually yields to the effects of the disease.

Such is an abridged view of the frightful malady to which M. Lugol, with zeal, perseverance, and success, has opposed a remedy, not absolutely new, but which had never previously been administered with so much method and precaution, to such a number of individuals at once, or with such evident and decided success.

M. Lugol is one of the distinguished physicians attached to

the Hôpital Saint Louis, the only hospital in Paris where a great number of scrofulous patients are admitted for internal treatment. This circumstance explains how, in the short period of seventeen months, from the 10th of August, 1827, to the 31st December, 1828, M. Lugol has been enabled to collect the detailed cases of upwards of 100 patients; in whom he, of course, found great variety in the seat and intensity of the disorder.

Before your commissioners proceed to give an analysis of the memoir, they deem it right to declare, that they have not at all confined themselves to the scrutiny of its contents; but that they have seen, examined, and questioned the patients under treatment, and have also visited some of those reported cured or convalescent,—that all the author's assertions have been found scrupulously exact,—that many of the patients who were under treatment when the Memoir was finished, have since been completely cured.

Without restricting ourselves to the order followed by M. Lugol in his Treatise, we proceed to make known its principal results.

In the first place we may observe, that he uses two preparations of iodine: the one, exclusively intended for internal administration, is a solution of this simple substance in distilled water. The others are proper for external application, whether as ointments for ulcers, pomade for frictions, or watery solutions of varied strength, for collyria, lotions, and injections.

The motives which have induced M. Lugol to employ by preference the *aqueous* solution of iodine, appear exceedingly plausible. So active a medicine can scarcely be administered in an hospital without inconvenience and uncertainty, except in the form of a drink. The alcoholic tincture and sirop of iodine present many disadvantages in the exact measurement and distribution of their doses, while a pint, or

half a pint, of distilled water, containing in solution a little common salt, and a fixed quantity of iodine, affords us an easy, precise, and economical method of dispensing the remedy. Two degrees of this solution intended for the patients, and designated by the name of "Mineral Water" No. 1 and No. 2, the first containing two-thirds of a grain, and the second one grain of iodine in solution, have furnished the means of dosing exactly from day to day, and of recognising the effects of what was previously employed. Thus, half of No. 2 is the first allowance, the entire of No. 1 the second, and, finally, the whole of No. 2.*

As to the preparations intended for the external treatment, these are unctuous substances of a certain weight, and associated in determined and successively increasing proportions with iodine, ioduret of potassium (hydriodate of potash), or with the proto-ioduret of mercury.

These simple means have sufficed M. Lugol for the treatment and cure of numerous cases, twelve of which, selected from the different species of scrofulous affections, are described in the Memoir. Three relate to ulcerated tubercles, cured in three, seven, and twelve months. Two cases are also described of opthalmia and coryza, one of which yielded to a treatment of forty-six days, while the other was prolonged to the ninth month. A case of fistulous abscess deeply situated in the cellular tissue, has required nearly a year's care. Four cases are also recorded by M. Lugol, of that frightful form of the disease most usually denominated "dartre rongeante," but which the author names the

* It will be seen, in the third part of this Memoir, that the author subsequently altered his formula, and substituted for it a solution of iodine in the hydriodate of potash. The first prescription, however, cannot be omitted here, so closely is it interwoven with the treatment of the twelve interesting cases in the first Memoir. Additional reasons, stated in the Appendix, concur to render the account of this simple solution of iodine a subject of considerable importance.—Translator's Note.

esthiomenic (or corrosive) scrofula. Finally, a case of scrofulous caries is detailed. This last form has generally been found very intractable. M. Lugol is only able to advance this single case of cure. It will be remarked, also, that the protoioduret of mercury was used, and that there still remains a small fistula as yet unhealed, but which appears to have a tendency to cicatrisation.*

All these cases are given at great length, they present complete accounts of the history and symptoms of the patients at the time of their first examination, and before the treatment was commenced. Many of the cases have been figured, and a record is presented of the modifications which have supervened during the treatment, as noticed twice every month, until the cure or discharge of the individual.

The author of the Memoir has carefully noticed the effects produced by the iodine on the animal economy. Applied externally, its local action has always been very sensible: it determines on the surfaces of the ulcers a feeling of smarting, accompanied with painful itchings. *This application to the diseased surfaces changes their appearance, and frequently produces as appreciable an effect as that determined by mercury on venereal ulcers.* Moreover, the mode of its action does not appear to be invariably the same: sometimes the iodine seems to melt down and resolve the tubercles, sometimes, on the contrary, it urges them on to rapid suppuration. At other times the painful sensation appears to diminish in proportion to the healing of the surfaces, an effect which is perhaps dependent on habit; nevertheless, some ulcers remain sensible while the curative process is not at all established.

Internally administered, and always in small doses, and

* In the Third Part of the Treatise many additional cases are recorded of the successful treatment of caries, hypertrophy, and spontaneous luxation of the bones.—Translator's Note.

with the most prudent slowness, the ioduretted water constantly excites the appetite, and appears to increase the urinary and salivary secretions. Sometimes, but very rarely, it has become purgative to so considerable an extent that its use was necessarily suspended, at different intervals, from two to three days each. In other and still rarer cases, in which the solution of iodine appeared to occasion pain in the stomach, the wine of quinquina, given according to the directions of M. Coindet, in a dose of two or three ounces, put an end to the troublesome symptoms. M. Lugol, however, always declined as much as possible this association of remedies, in order to avoid complexity in the results of his treatment.

Iodine, administered in this diluted form, has never caused emaciation nor produced the expectoration of blood or other accidents, which many have imputed to its action.

From the contents of the first Memoir it appears that M. Lugol has treated with iodine alone, in seventeen months, at the Hôpital St. Louis, 109 scrofulous patients, of which 61 were males and 48 females.

That at the close of last year, 39 (29 males, 10 females) were still under treatment.

That 30 (17 males, 13 females) had quitted the hospital with marked improvement.

That in four cases (2 males, 2 females) the treatment was ineffectual.

Finally, that 36 (13 males, 23 females) were discharged completely cured.

The author concludes, from all the facts he has collected, and the researches he has conducted, that iodine deserves to be considered as the most efficacious remedy in scrofulous diseases, since it has constantly arrested their progress, or at least exercised a salutary action in the treatment of all tubercular tumours, even when it has not evidently accomplished

their cure. He therefore believes that the introduction of this remedy into medicine is one of the most valuable acquisitions the healing art has made in modern times.

We shall then confine ourselves to say, that after having made ourselves acquainted with the facts cited in the memoir, we have been enabled to confirm the evident action of the remedy; and that we believe M. Lugol to have effected a work of great utility by availing himself of the facilities afforded by his situation, in seeking for a remedy for a disease hitherto so deplorable and desperate. We consequently propose to the Academy to encourage this physician to persevere in the researches which he has hitherto pursued with so much zeal and sagacity.

(Signed) SERRES,
MAGENDIE, and
DUMERIL, Reporter.

The Academy adopts the conclusions of this report.

(Signed) Baron G. CUVIER,
Perpetual Secretary, Counsellor of State,
Grand Officer of the Legion of Honour,
&c. &c.

CHAPTER I.

OBSERVATIONS ON THE PHARMACEUTICAL PREPARATIONS OF IODINE, PRESCRIBED IN THE FIRST MEMOIR.—THEIR ACTION ON THE ANIMAL ECONOMY.

HAVING established the anti-scrofulous virtues of iodine, I proceed to allude to some of its pharmaceutic preparations. We shall then study their action on the animal economy.

§ I.—PHARMACEUTICAL PREPARATIONS OF IODINE.

Considering the multitude of combinations which this body forms, and its powerful taste in the minutest quantity, I thought it would prove a very active remedy, and that much caution should be exercised in the experiments I was about to institute, in order that no pretext should be afforded to the exclamations of those persons who have an instinctive aversion to all innovations.

For these reasons I declined to follow the methods of administration hitherto adopted; and as to the dose, the maximum at which I arrived is much inferior to that advised by M. Coindet in the treatment of goitre.

The two preparations most generally adopted are the tincture of M. Coindet, physician of Geneva, and the sirop of M. Henry, chief apothecary to the civil hospitals of Paris.

The tincture of iodine is ordinarily prescribed in drops, of which ten, fifteen, or twenty, are given daily. It has been calculated that twenty drops contain a grain of iodine, so that the majority of patients usually take three grains a day to the end of the treatment.

In certain private cases this preparation of iodine may doubtless be administered, where the physician actually assists in its employment; but it would show little knowledge of the measure of human patience, to believe that this mode of administration could be accurately followed in a public establishment, to an immense number of patients daily.

Another consideration has induced me to exclude the use of the tincture. I have been consulted by patients in the provinces, where this tincture, as yet little known, must be prepared with much diversity, so that a determined quantity of the liquor not giving a determined dose of the remedy,

the treatment cannot be conducted with certain data, and unpleasant effects may thus be produced.

The same reflections are applicable to the sirop of iodine of M. Henry. In some cases its use may be watched, but security cannot be obtained in its daily employment on the large scale.

In town practice, moreover, another difficulty presents itself with regard to the sirop: according to its author this preparation contains three grains to the ounce; but unless we can generalise the use of measure-glasses, we shall always be deceived by trusting to the conventional measures of the spoonful, &c.

It is generally admitted that an ounce of water fills two spoons, and that a spoonful of sirop weighs an ounce. I can, however, affirm that this is not the case; two spoons may differ more than half, either from diversity in capacity or in the mode of filling them. I speak according to an experiment often repeated in the treatment of venereal diseases, for which, in counting by spoonsful, I have found such important mistakes to occur that I was obliged to renounce this method of measuring the sirop or liquor of Van Swieten.

These remarks will appear less frivolous if it be considered, that having the intention of giving iodine to an immense number of patients; wishing, above all things, to avoid the accidents which so active a remedy might occasion, I thought it right to take the necessary dispositions, in order to avoid the complications which might arise from its irregular administration.

The mode of preparation which I regard as the most certain is the state of perfect solution in distilled water, observing always not to extend the quantity of the vehicle much beyond that necessary to obtain the perfect solution, because the distilled water, being indigestible itself, may produce some inconvenience.

At first I fixed this vehicle at a pound, in this I dissolved half a grain, two-thirds of a grain, or a grain of iodine, in order to have at my disposition three degrees of the same remedy, to be used according to the individuals and periods of treatment.

Besides, I have sought to render this solution still more assimilable by the addition of twelve grains of the chloruret of sodium, an addition which probably compensates also for the absence of air in the distilled water; a deficiency which produced less inconvenience than I anticipated, and which was never sufficient to oblige me to change this mode of prescription.

I have denominated these three degrees of the solution as iodurettted mineral water, No. 1, 2, and 3. In all cases I commenced by No. 1, seldom proceeding to 2 till the second month of treatment. I have by no means given No. 3 to all scrofulous patients, and I have never had occasion to pass this last dose of one grain per day.

The clinical experiments of which I have given the history, have all been performed with the three degrees of this mineral water; but afterwards, not losing sight of the necessity of diminishing the quantity of the vehicle as much as possible, I became accustomed only to prescribe the 2d and 3d No. of the preparation. These two degrees may serve for the administration of iodine according to the same graduation which I previously observed with the three. It will be sufficient to begin with the second, No 3, which at first will serve for two days; we may then return to No. 2 and 3, which the patients may take in a single day. In this manner the dose will be half a grain at commencing, and gradually two-thirds of a grain and one grain every twenty-four hours.

It will be seen that I have stopped far short of the maximum dose administered by M. Coindet, who gives it to the

extent of three grains a day. Although this precedent was before me, I could not induce myself to imitate it, for I found that the patients were sufficiently excited and improved by the smaller doses I gave them; and I even judged by the particular effects produced under my immediate observation, that the increase of the dose might be attended with dangerous results.

I shall not omit to mention a particular circumstance which caused me to understand all the difference of action produced even by the slightest increase in the quantity of the remedy. I have seen scrofulous patients on whom the iodu-retted ointment No. 1 was nearly inactive, but who could with the utmost difficulty endure the application of No. 2. Of this description was Melanie Augée, who endured a feeling of almost insupportable smarting for two or three hours, when she rubbed the tubercles with No. 2, and who nevertheless insisted on using it on account of the inactivity of No. 1. This difference was produced by an increase of one-sixth in the quantity of iodine. The highest number, in fact, produced so intense a local action, that I was obliged to suspend its application often for twenty-four or thirty-six hours, in order to prevent local accidents.

This contemplation of the external mode of action of iodine directed me in its internal use, and confirmed the caution I observed from the very commencement of my experiments.

I avoided the tincture of iodine for another reason besides those already described. It is usual to prescribe this remedy in an *aqueous* vehicle! The whole of the iodine is consequently precipitated in the pure solid state, in which form it may produce intense excitement in the stomach, if we may judge by our knowledge of its external effects. This observation applies still more forcibly to the sirop, which contains the iodine only in a state of suspension. It is, I feel con-

vinced, in consequence of the employment of such modes of dispensing, that accidents have ever occurred, or prejudices arisen against the remedy. Tartar emetic, corrosive sublimate, and other powerful remedies essential to the treatment of numerous diseases, have been found to produce bad effects before their apt dose and due mode of preparation were discovered. Even yet, such evils follow when the necessary indications which should regulate their use are neglected, or improper methods of administration pursued.—Iodine, thus, would long have been a source of more harm than utility, had not the indications it may fulfil, and the rules according to which it should be prescribed, been diligently sought for in suitable conditions.

But whatever merit may be possessed by the preparations thus recommended for internal use, they do not answer a purpose of frequent occurrence in scrofulous cases, viz.—that of local treatment. I, therefore, at first, prescribed a particular ointment, of three different strengths, composed of hydriodate of potash and iodine.

IODURETTED OINTMENT.

	No. 1.		No. 2.		No. 3.
℞ Fresh Lard	℔ ij	..	℔ ij	..	℔ ij
Hydriodate of Potash	ʒ iv	..	ʒ v	..	ʒ v
Iodine	ʒ iv	..	ϑ xiv	..	ϑ xvi

Afterwards I made use of a solution of iodine, which occasionally forms a valuable substitute for the preceding ointment, especially in scrofulous ophthalmiæ, and for the injection of fistulous canals.

IODURETTED SOLUTION FOR EXTERNAL USE.

	No. 1.		No. 2.		No. 3.
℞ Iodine	gr. 2	..	gr. 3	..	gr. 4
Distilled Water ..	℔ j	..	℔ ij	..	℔ iij

As to the dressings and iodine frictions, I have been enabled by care to regulate the proportions of iodine and

hydriodate of potash in the several degrees of the ointment and solution, but I found it almost impossible to assign a fixed dose daily to each patient, from the variable condition of the parts and the necessary diversity to be observed in the quantity or repetition of the application. During the first months of my experiments, I dressed ulcers or rubbed the tumours twice a day; but afterwards, I remarked in several cases that two such local irritations were too much in such a short interval. One dressing daily is therefore only practised, unless in particular cases of profuse suppuration, which very frequently attends fistulous ulcers, symptomatic of scrofulous caries of uncertain extent.

§ II.—EFFECTS OF IODINE ON THE ANIMAL ECONOMY.

1.—*External Local Effects of Iodine.*

The external employment of iodine ordinarily produces intense local action, and often causes a prolonged sensation of prickling and smarting, especially severe on bathing days.

In many cases this action terminates by a fit of itchiness, short in proportion to the duration and the degree of pain first experienced.

A few days are sufficient to change the aspect and improve the condition of ulcers, whether suppuration be produced or not. We have observed this repeatedly in a vast number of cases; the following examples will illustrate the rapidity with which the local changes occur:—

Two scrofulous patients,—one Scieuré, since cured; the second Hastard, afterwards dismissed convalescent, were each affected with ulcerated cervical tubercles, in the month of May, 1828.

Scieuré had an ulcer an inch in length, of oval form, deeply seated in a tubercle of the same shape; the edges

were red, bleeding, projecting about two lines over the base, which was fungous, and bathed in scrofulous pus.

In Hastard the principal ulcer was round, soft, its edges unequal, thin, red, and bleeding, generally level with, but in some points below, the centre, which suppurated profusely.

Scieuré's ulcer was at the left side of the neck; Hastard's at the right: so that, looking from one patient to another, we had two different examples of scrofulous ulceration in its most striking form. The appearances in these cases struck me so much that I wished to have them delineated by Dr. Carswell,* an able anatomist, who possesses the highest degree of perfection as a pathological painter; but that gentleman having been detained at La Charité by similar labours, he could not at once comply with my request; and when ten or twelve days of the treatment had elapsed, the ulcers had so changed that they were no longer objects of delineation, both being then in a rapid progress of cure.

It is not exaggeration to say that iodine changes the appearance of scrofulous ulcers sometimes more quickly than mercury modifies that of syphilitic sores.

We have even seen ulcers cicatrised too quickly; that is to say, before the complete resolution of the tubercles; but this is not so troublesome a result as might be anticipated, for the iodine resolves the tubercles quite as well as it excites suppuration.

We have also seen old cicatrices gain the level of the skin, lose their morbid colour, and again resume the normal colour of the cutaneous tissue. The young woman, Courriot, whom we cured of an ozœna and ophthalmia of the right eye, had two old scars on the upper third of the sternum, of a red colour, deep, and puckered; both these became pale, and reached the level of the surrounding skin.

* Now Professor of Morbid Anatomy in the University of London.—Translator's Note.

The skin, when rubbed with iodine, becomes of a reddish yellow colour, from the absorption of the remedy, its presence in the cutaneous tissue, and its injection into the capillary vessels. The epidermis soon becomes detached in layers of various sizes, so that the ointment comes into immediate contact with the true skin.

In general, this effect of the ointment is in proportion to the degree of its local action. I have, however, twice seen, in Louis Fleuriet, and Isidore Ferreth, this local action take place to the utmost extent, without being followed by desquamation of the epidermis. "It appears to me," said Fleuriet, "that the ointment burns me till the matter flows, and then the pain is extinguished." The majority of the patients expressed themselves in similar terms.

Nevertheless, the suppuration of the scrofulous tubercles, under the influence of iodine, is subject to many secret conditions which I have not yet been able to comprehend. I have frequently seen tuberculous ulcerations cured after copious suppuration; sometimes, also, recent cicatrices, still of a fistulous kind, suppurating copiously, and much of the adjoining textures mixed with the discharge.

But it would be wrong to conclude that the suppuration of tubercles was nothing more than the breaking down of their own substance. If such were the case, the suppuration should always be proportionate to the extent of the tubercle; and when this focus was once voided, its walls would cohere by the plastic inflammation. But such is not the progress observed to take place in the scrofulous tubercle. It suppurates by an internal impulse, which may either be general, or reside in themselves, but which is not always in proportion to their volume. The suppuration is perhaps a secretion analogous to the mode of development of the tumour itself within the cyst which serves for its nutritive organ.

The suppuration does not necessarily remove with it the

source of the tubercle. There are even cases in which it is not diminished; others again in which a tubercle, apparently emptied by the discharge, quickly regains its original volume by the secretion of a new quantity of tubercular matter once more accumulated in the cyst. A young man, besides other tumours, had a tubercle, on the left side of his neck, as large as a nut: it burst itself, and a quantity of pus was discharged proportionate to its volume, and it consequently became diminished about five-sixths; some days after, I found it as full as before the suppuration took place.

It should not be lost sight of, in the study of this disease, that a tumour is usually composed of several tubercles, which communicate together before they form a common swelling enclosed in the same cyst; that in certain cases the limits of this tumour are more distant and deeply-seated than they appear to the touch, so that a fistula which we might believe to terminate in a minute and separated tubercle may communicate through this with another of variable size. All these anatomical details being taken into consideration, it will be seen that the suppuration is not in a certain ratio to the bulk of the tumour, and that it sometimes continues as a secretion, though the cysts are not freed from the tubercular matter they contain; and, finally, that in the cases where they are evacuated, they may be speedily filled with new tubercular contents.

I shall conclude what I have to advance on the local external action of iodine by saying that it lessens in activity accordingly as the surfaces heal. I have pointed out this phenomenon in the history of Adele Gandel (see Case III.), and I have observed it to occur so frequently that I do not dread to offer it as a generalized fact.

In Caroline Richard (see Case II.), in whom an ulcerated tubercle suppurated very faintly, the iodine produced intense excitement, which usually lasted for two or three hours each

time. Towards the end of her illness, after the tumour had disappeared, the ioduretted ointment, which she used for another month, only caused slight and transitory itching. The same effect has been observed in Olivier, Bourger, &c. (See Cases VI. and IX.)

This decrease of action cannot be regarded as an effect of *habit*, for we have had patients under treatment for a year, in whom the iodine acted as powerfully as ever on the still diseased surfaces, but had no effect when the cure was more advanced, or entirely complete.

2.—*Internal Effects of Iodine.*

The internal use of iodine frequently produces particular effects; one of the most important noticed at St. Louis was the increase of appetite in the patients to such an extent that the hospital allowance of food was scarcely or not at all sufficient. This is certainly one of the best effects of iodine, for not only does it indicate an improved state of the digestive organs, but it enables us with ease to invigorate the general constitution by wholesome nourishment, which is particularly valuable in scrofulous patients, in whom very frequently the appetite is almost entirely deficient.

This ordinary effect of the ioduretted preparations on the animal economy sufficiently denotes the numerous applications which may be made of them in the treatment of other diseases, here unnecessary to enumerate, but in which the digestive organs require to be excited.

Iodine is a powerful diuretic. All the patients using it have informed me that they pass urine copiously; and I have known this secretion to be so much increased with many that they were obliged to rise once, twice, thrice, or oftener, by night, than was their usual custom; some have even experienced this diuretic action of the ioduretted mineral water

in so instantaneous a manner that iodine was detected in their urine almost immediately after the dose was taken.

More than one-third of the patients who used it have experienced a purgative effect also, and in this respect there prevailed much diversity, from mere freedom of the alvine evacuation, to six or seven stools daily.

When the dejections were numerous, iodine caused colics pretty frequently. Augée, Gandel, and Bourger, hereditary sufferers by scrofula, experienced this purgative action in its most active form. In these patients, also, the ioduretted ointment produced its most decided local effects. All three were cured.

This purgative action of iodine, when kept up to a certain degree, prevented my increasing the dose without much caution; but it never caused me to suspend the internal employment of the remedy, except for intervals of two or three days, as I did with the ointment, when it smarted too powerfully.

Iodine has also produced, in several instances, remarkable salivation. I have seldom observed that effect but in *male* patients. It was especially remarkable in Poiré (see Case X.), who was salivated most profusely in the morning after drinking the mineral water. The ioduretted frictions also operated remarkably in this case.

Several patients, the females especially, have complained of pain in the stomach. I have always stopped this uneasy symptom with the kina wine, of which the patients took two or three ounces after their mineral water. On this point, M. Coindet's experience anticipated mine; and my observations, on the other hand, have verified those of that excellent practitioner, on the efficacy of kina in appeasing the cardialgic affections sometimes produced in certain individuals by the use of iodine.

It was on this occasion alone that I departed from my prescribed rule of conduct, of administering iodine by itself, in

order to test its antiscrofulous virtues in the most unexceptionable manner. However it be, this combination, to which I was guided in order to mitigate an effect annoying to some patients, cannot invalidate the efficacy of iodine; for I had before given the kina wine, either alone or in combination, to several other scrofulous patients, without success.

To prove the specific powers of a remedy, it is doubtless necessary to give it as separately as possible; but we should not the less endeavour to discover the apt combinations which may render its efficacy more certain and extensive.

Bark is the remedy of intermittent fevers, whether febrile or apyrexial; but as these diseases, though generally the same, yet sometimes offer many varieties, demanding corresponding changes in the administration of bark; so it will be necessary to understand how to multiply the successes of iodine, either by modifying its methods of preparation, or by associating it with analogous remedies, which corroborate its antiscrofulous powers.

These reflections are general, and may be applied in the most special diseases, in those the treatment of which is most matured. In all, it is incumbent to endeavour to extend the efficacy of the principal remedy, either by modifying the substance itself, or by some addition relative to the difficulties presented by particular examples of a disease.

With iodine it will be the same as with all other medicines which cannot effect a cure unless administered in proper season, in fit dose, and in appropriate form. It will be the same with iodine as with mercury, which only cures syphilis where administered under certain conditions,—with purgatives, so much neglected in the present day,—with bleeding, bark, opium, and regimen. The application of these remedies always remains subordinate to circumstances, independently of which they become pregnant with danger, even in the very

cases in which their due employment would have been efficacious; or was even the sole, but certain method of cure.

SEQUEL OF THE PRECEDING CHAPTER, AS AN ANSWER TO SOME OBJECTIONS PROPOSED AGAINST IODINE.

I have described, as clearly as I could, the effects of iodine on the animal economy. Resting on my own observations alone, I cannot relate a single accident produced by this substance; but I should not, therefore, pass by the assertions hazarded about its pretended noxious action, especially since prejudices have thus been created in the minds of several practitioners. I should, moreover, keep silence the less about these assertions, as their refutation will afford me an additional opportunity of developing the salutary effects of iodine in scrofulous diseases.

1.—*Iodine does not cause Emaciation.*

It has been pretended that this medicine induced emaciation and diminished the fulnessof the female person. This property, with which it has been most gratuitously invested, has been considered a reason for withholding its prescription and rejecting its benefits.

I can confidently assure the practitioners who may have listened to such prejudices, that I have never seen a case in which iodine injured the health in any manner whatever. Far from being ever hurtful, it is a powerful stimulant which revives the organic functions, fortifies the general constitution, and *encourages the growth* and *increase of size.* I have drawn up a statistical account of the scrofulous females

treated in the course of eighteen months, and I may cite here as the general results: 1. *That thin females* have acquired a state of *embonpoint*. 2. That corpulent women have not become emaciated. 3. That those not belonging to either of the preceding heads, have lost nothing of their middle state, but have gained increased strength and improved health.

I may mention in particular Bourger, Gandel, Ducas de la Hitte, Marcou, Le Cot, Pannier, &c. &c., who all acquired strength, growth, and plumpness, under the influence of ioduretted preparations.

Savayguerras, Richard, Corneville, Roth, Levallois, Caillard, Verdelle, the two Augées, &c., of rather more than ordinary fulness of person, and approaching the state which in my lectures I denominated *scrofulous beauty*, have lost nothing of their size.

Not only have the patients who underwent this treatment remained free from emaciation, but they have generally acquired much better health. This, without any exception, was the case with the scrofulous patients, male and female, treated in the Hôpital St. Louis, during eighteen months.

Under this treatment Nathalie Bauché, and Eugenie Nanche, menstruated at 14; Anne Hugot at $16\frac{1}{2}$; Louise Pontillon abundantly; Savayguerras and Melanie Augée, who had been tormented by distressing dysmenorrhea, have found the catamenia to become regular and abundant. These young women preserved their fulness of person.

Pochon, in the same manner, has menstruated and acquired a generally better health; and what is worth particular attention is, that this girl was much worse fed in the hospital than when residing with her parents.

2.—*Iodine does not produce Pulmonary Tubercles, Hæmoptysis, or the other Accidents apprehended by certain Practitioners.*

M. Rullman, physician at the warm springs of Wisbad, near Mayence, who came to the Hôpital St. Louis, to witness my experiments, informed me, that in Germany it was considered that iodine produced expectoration of blood and other serious thoracic accidents: I can affirm, that not one of my scrofulous patients has spit blood either during the treatment, or since its termination.

I shall also prove, in another memoir, that the lungs of scrofulous individuals are generally tubercular to a greater or less extent, so that if iodine produced hemoptysis, it should do so still more powerfully in these persons, since the great majority of them, at least, are predisposed to it so much that Baron Portal considers pulmonary phthisis as generally scrofulous in its nature.

So far from iodine producing thoracic disease, we have known several patients in whom the disease partially involved the pulmonary organs, and in whom the affection of the lungs was much improved under the iodine treatment, as well as the ophthalmia, coryza, tubercules, and other external symptoms.

Of this class of patients were Aimée Liard, Caroline Richard, Anne Robequin, Caroline Marcou, and Francois Arnault. The last had a chronic pleuro-pneumonia, and a fistulous ulcer in the right axilla; the respiration, previously dull, became distinctly catarrhal at this side, when the fistula dried up; other cervical and inguinal tubercles at the same side disappeared, equally under the influence of the iodine preparations; and after a convalescence of six weeks, the patient repeatedly demanded to be allowed to leave the hospital, saying, that he was strong enough to exercise his calling as a

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tailor. In the treatment of this man there was nothing peculiar except a blister over the dull side of the chest, kept up about a month.

I will also adduce the example of Caroline Richard (see Case II.), whose seven brothers and sisters had been swept off either in their birth or early infancy, who lost a sister at 15 with tubercular lungs and caries of the ribs, and whose only surviving sister laboured under an advanced stage of consumption. It may be understood how dreadfully this patient was predisposed, yet she terminated her treatment without accidents: the cervical tubercles with which she was affected were cured, and not a single disagreeable thoracic symptom supervened.

In like manner Michelot, at first an hœmoptoic and scrofulous patient, and afterwards attacked with caries of the bones, has undergone an iodine treatment of eight months without the occurrence of any bloody expectoration; neither has it since supervened.

The other examples mentioned in a preceding paragraph are of considerable interest, from the patients having presented many symptoms of pulmonary tubercle, which disappeared under the influence of iodine. Anne Robequin has also furnished on this point an opportunity for remark which I cannot silently pass over: her cough was so severe that the iodurettted water used to be vomited while she coughed, I therefore suspended it during three weeks of the month of July, but during the suspension the cough was still more aggravated. When I resumed the iodine water it was no longer rejected by vomiting, and in the sequel the cough diminished in equal pace with the cervical tubercles for which she was received into the asylum.

I must, however, say, since my personal observations authorise it, and since I deem it of utility to the human race, that I should dread the thoracic or other accidents, which

many practitioners apprehend, did I use daily the three grain-doses of iodine, as practised by M. Coindet. Not that I doubt the veracity of his statements, for, on the contrary, I feel happy to acknowledge him as my predecessor in these researches, but because in the sphere of my own experiments the dose of three grains appeared to me liberal beyond measure, and likely to pass beyond the salutary effects ever produced by more moderate doses.

CHAPTER II.

CASES ILLUSTRATIVE OF THE EFFICACY OF IODINE.

§ I.—IODINE IN TUBERCULAR SCROFULA.

Case I.—Eugene Chateau, lapidary, aged 22, whose father died paralytic at 48 years of age, and his mother while still young after a confinement; he had a sister, æt. 33, subject to chronic ophthalmia, and two other sisters, still older, whose histories presented no remarkable feature: he was of most industrious habits, never suffered privations, or was exposed to any of the reputed occasional causes of this disease.

From infancy he had been affected for several years with swollen cervical glands, and up to 17 years of age he had troublesome chilblains; he had also epiphora of both eyes since he was 10 years old, with dilatation of the nasal canal. At 19, 20, and 21 years of age, in the month of August, a pustule appeared on the back of the nose, at the orifice of the cartilage, and remained three months each year.

When 22 years old, tubercular masses appeared in the neck, and a lichenoid eruption over the whole body; finally, on the

20th of September, 1827, his condition was thus reported—extensive indolent ulceration, occupying the right anterior region of the neck and chest, of most irregular form, its mean diameter three inches and a half, soft, red, covered with pimples, shallow, and suppurating copiously, its edges notched and bleeding, and the surrounding parts of a livid red colour to a considerable extent. Between this ulceration and the right inferior angle of the lower jaw there were four extremely hard tubercles, forming part of a tubercular chain extending to the apophysis of the chin; on the left side, only a few pisiform tubercles were felt; the neck was swollen, red, stiff, and motionless. The patient, moreover, was overpowered by a feeling of lassitude, which increased by resting in bed, and which prevented sleep.

The iodine treatment was commenced on Monday the 24th September, 1827, and was continued for twenty-four days without interruption. The ulceration, tubercles, epiphora, stiffness of the neck, and the lassitude which the patient experienced, especially at night—all these symptoms were much mitigated after the first fortnight of the treatment, and at the end of the month the patient was in a rapid progress of cure: he was nearly well, when the disease remained stationary for a month in December and January. After a suspension of the remedy for seventeen days, the treatment was resumed on the 11th January, 1828, and at the end of the month the disease was entirely cured; I then once more remitted the iodine preparations for some days, to resume them again for two months, from the 11th of February to the 11th of April, in order that I might be more secure of the happy issue of a case which even by itself was calculated to inspire hopes of the generally successful treatment of my future patients.

Case II.—Caroline Richard, milliner, menstruated at 15 years, and the appearance of the catamenia coincided with the cessation of an ophthalmia of six months' standing; the cellular tissue and mammary glands, which were protuberant before puberty, had become still more developed at that epoch; a deceptive token of perfect health in certain scrofulous subjects.

This young woman entered the Hôpital St. Louis on the 18th of August, 1827, then aged 22 years; a tubercular tumour larger than a hen's egg was situated beneath the mastoid process, behind the greater angle of the right jaw, which it passed by obliquely, from behind forwards, and above downwards. The tumour was ulcerated at its upper part.

This tumour commenced at the age of 17, by a tubercle which remained stationary for four years, but which after that, during six months, increased rapidly after the cessation of a leucorrhœal discharge, which had been very abundant during the preceding summer.

Her father and mother were by no means scrofulous, and nevertheless their posterity were so to an extreme degree: seven of their children were still-born, or died quickly after birth; one daughter died of pulmonary tubercles, with caries of the ribs, at 15 years of age; only three children now survive; one a son, whom I did not see; the second, a daughter æt. 24, labouring under pulmonary tubercles; the third, Caroline Richard, the subject of the present observations.

The treatment was commenced on the 24th of September, 1827.

In the first fortnight the ulcer looked better, but the tubercular tumour underwent no diminution till the second. In the second month of treatment the general health was efficaciously acted on, and the patient declared that she no longer experienced the night lassitude and indisposed feeling which she suffered on admission.

The ioduretted ointment occasioned sharp pain, and night and morning she complained of burning heat for two hours; I was consequently obliged to diminish its strength, and sometimes to omit it one or two days. The ioduretted water caused a copious flow of urine, and increased the appetite to a considerable degree.

In three months and a half the ulceration was cicatrised, and the tumour diminished one half: I had ascertained by the finger, a short time before, that the swelling was composed of two tubercles, the superior of which was alone engaged in the ulceration. The local action of the ointment No. 2 continued very powerful, especially on bath days, it was therefore several times necessary to use the ointment No. 1. The ioduretted mineral water produced pains of the stomach, but these never occurred after she was ordered to take fasting a dose of the quinquina wine.

During a suspension of eight days the improvement was permanent, and even progressive; but after a second intermission the treatment was not so successful; the cure did not proceed during the winter, I therefore again suspended it from the 1st to the 15th of April, and at the third time the iodine treatment recovered all its power, and the patient was discharged on the 24th May, 1828, having no more traces of her disease than an induration the size of an almond, on the place previously occupied by the scrofulous tumour. The cicatrix was linear and devoid of colour.

The patient returned to see us several times last summer, and we found that the mark continued isolated, that its circumference was free, and that the general state of health was as well as could be desired.

Case III.—Adele Gandel, mantuamaker, æt. 15, whose mother died at 35 years of age of pulmonary tubercles, entered the Hôpital St. Louis the 14th of September, 1827,

bearing numerous marks of scrofula, which had existed since she was six years old.

There were ulcerated tubercles on the left cheek, and the same side of the neck; on the right cheek and side of the neck, beneath the chin; and at the top of the sternum.

The greatest, situated below the chin, was ulcerated a year. She stated that this tubercle, and another at the left side of the neck, were those which had suppurated most copiously, and from the earliest period. The others were, in fact, cicatrised more or less; and the scars were red, gathered, projecting, painful, dirty, covered with crusts, and concealing suppuration. Most of them were fistulous; and, beneath the cicatrices, tubercles as large as hazel-nuts were perceptible to the touch.

Besides these actual symptoms, this young woman bore three scrofulous marks, on the inner side of the left-hand, on the anterior surface of the arm, and on the inferior fourth of its internal edge. There was no appearance of the bones having been at any time diseased.

Some crusts occurred in the left nostril: these were, however, never considered of any importance. The right shoulder projected rather more strongly than the left.

This patient, whose treatment was commenced on the 24th September, 1827, was nearly cured on the 19th of the following November. According as the scars became level with the skin, the subjacent indurations were dissipated; no more crusts remained, except on the two principal tubercles; which, besides, suppurated so little as scarcely to stain her linen. These sores were, however, still fistulous, and much pained by the iodine ointment; a sensation no longer experienced in the other tubercles of the neck and face, where intense pain was previously caused by the application.

The general state was also improving; and the treatment was continued till the 31st of December.

In the month of January, after five days of sore throat, erysipelas of the face supervened, which lasted four days in the acute state; after which the figure was covered with furfuraceous desquamation for a fortnight. The patient was twice purged.

[1st March, iodine ointment resumed, a new ulcerated tubercle having appeared at the left side of the neck.]

At the end of April a second attack of erysipelas of the face occurred, two days at the right, two days at the left side, generally less severe than the first fit. After this she was once purged.

In March the treatment was resumed, on account of a tubercle which still remained to the left, and below the chin; the application of iodine now occasioned pain in the scars, which had been insensible to its action for several months,—a circumstance which induced me to persevere in its employment, although the iodine ointment generally ceases to exert any local action according as the cure progresses, and the surfaces become healed and freed from contraction. Gandel showed this phenomenon remarkably; and I avail myself of the opportunity to point it out.

The treatment was continued till the end of July; and the young woman quitted the establishment cured, and in a most satisfactory state of health, on the 1st September, 1828.

§ II.—IODINE IN OPHTHALMIA AND SCROFULOUS CORYZA.

Case IV.—Francois Fredel, glover, æt. 19, was placed under treatment, having experienced the following symptoms for three months: redness, swelling and stiffness of the nose; dryness of the pituitary membrane, on which were formed crusts, which impeded the respiration; ophthalmia of

the right eye; epiphora of both; no local pain, either of the nose or eyes.

These symptoms were immediately succeeded by an eruption over the neck and face, which lasted 15 days. At 10 years of age this young man exhibited signs of pulmonary tubercles for three years. Of eleven brothers and sisters, seven were either still-born, or died in their infancy. He had two sisters, of 12 and 15 years, both of whom had, a year previously, suffered from affections of the nose and eyes, of six months' duration. He has a brother æt. 24, in good health; and his father and mother are free from apparent disease.

Francois Fredel left the hospital, after forty-six days' treatment: he was then much improved. He asked my permission to come back for advice, if he should experience any relapse. I expressly requested he would not fail to do so; but I have not seen him since.

Case V.—Eugenia Nanche was born of a mother who died at 50 years of age, having been previously sickly for a lengthened period. Her father, a book-binder, æt. 36, was living, and enjoying good health.

She had nine brothers and sisters. A sister died of pulmonary tubercles at 24 years; a second of amenorrhea at 19; a third died at 15, never having menstruated; a fourth sister had been constantly tormented by menorrhagia. Of her brothers, one died in the army; the three others were yet free from disease.

She was received into the Hôpital St. Louis on the 1st February, 1828, æt. 14 years and 2 months, and she then offered the following symptoms: inflammation, of nearly 10 years' duration, of the left eye, which was painfully affected by light. At first it lasted two or three weeks, three or four times a year. At 12 years of age it returned every month;

and for the last year it continues to offer monthly aggravations.

The fits of ophthalmia usually coincided with a deafness of the same side and a severe headach, stronger at the left than the right side. This occasionally increased to such a pitch of intensity, especially if she walked far, that she fancied she received blows of a hammer on the head. Sometimes the right eye was ophthalmic, probably from fatigue; but that state only lasted a few days.

A tubercle as large as a nut existed for eighteen months, in the middle and anterior region of the neck. It was slightly adherent, indolent in its progress, occasionally attacked with lancinating pains, but had never been ulcerated.

I wish particularly to point out the occurrence of headach in this young female's case. It is an affection most common amongst scrofulous persons; and it should be regarded as a particular scrofulous disease, inasmuch as it may exist without any other well-marked concomitant symptom.

The symptoms were subject to monthly exacerbations; and these all ceased under the influence of ioduretted preparations.

The cervical tubercle was longer in disappearing.

The nose was sometimes red and swollen; but this affection soon subsided under the use of iodine frictions. The swelling seldom lasted at one time for more than two or three days.

During the treatment great improvement took place in the general health. The catamenia appeared, for the first time, on the 9th of March, their return took place on the 4th of June, when they were present two days, being a day less than at the first period. In July and August there were vain attempts at the discharge. The same occurred on the 27th September. Twelve leeches to the vulva produced the menstrual discharge three days later; and it spontaneously returned on the 19th October, 1826.

The patient was discharged on the 11th November, 1828, in perfect health. The ophthalmia, deafness, and headach. had been cured from three to four months. The cervical tubercle had disappeared for two months, and there only remained a slight stain on the cornea. The treatment had been persevered in for eight months, up to the end of October.

§ III.—IODINE IN SCROFULA OF THE CELLULAR TISSUE, OR IN THE SCROFULOUS ABSCESS.

Case VI.—Amand Olivier, a joiner, aged 26 years and 5 months, was admitted into the Hôpital St. Louis, affected with the worst form of scrofula. There were four fistulæ, which pointed out the seat of an equal number of voluminous abscesses from which they proceeded. The first, situated within an inch and a half of the posterior edge of the axilla, existed for three years on the great dorsal muscles. The second, of three months later origin, had its seat two inches beneath the axilla, behind the border of the great pectoral muscle. These two fistulæ terminated at the inferior edge of the glenoid cavity of the scapula. The third, which commenced to form in a short time after the second, was situated immediately beneath the external extremity of the clavicle, and terminated at, but did not enter, the acromio-clavicular articulation.

There was nearly complete anchylosis of the shoulder, the arm was fixed against the trunk, and the fore-arm bent to a right angle by the contraction of the muscles. The fourth fistula, situated beneath the lumbar aponeurosis, and on a level, at the left side, with the last lumbar vertebra, suppurated abundantly like the three others. These four fistulæ supervened, one after the other, during four years.

They discharged pus copiously, but were free from swelling or pain. Though their seat indicated caries of the neighbouring bones, we found no osseous denudation, either at the shoulder or loins. There was also much reason to apprehend the existence of a congestive abscess in the lumbar region on account of the debility, etiolation, emaciation, loss of appetite, and want of sleep.

The mouth was still pretty clean, and no pathological indications were manifested by the thoracic organs. Olivier was moreover affected with a disease of very common occurrence in scrofulous persons, namely,—a violent palpebral ophthalmia, the lower eyelashes had fallen out, the ocular conjunctiva was slightly red, and the pupils dilated.

After three months and a half of treatment, he ate and dressed himself with the assistance of his right-hand, a facility which he had not possessed for four years. The three fistulæ around the shoulder and loins were dried up, and the patient found himself well enough to resume labour.

The ophthalmia was not, however, materially improved, and, as before, it was more intense in the morning than the evening. This last circumstance, as well as the nature of the malady, prevented my having recourse to venesection. Had the palpebral ophthalmia been more violent in the evening after exposure to the light of day—had it been increased after meals or exertions—in a word, had it been aggravated by the circumstances which accelerate the action of organs and increase their inflammatory disposition, I might have decided on, at least, local detraction of blood; but the malady becoming more severe in the absence of all these conditions, I could only consider it as a form of special ophthalmia, or rather as a scrofulous disease, which should be amenable to the same kind of remedies which had prevailed over scrofulous diseases of equally serious character.

The treatment was accordingly resumed on the 16th of

February, and continued to the end of March. In the month of April, seeing that the shoulder was susceptible of no further improvement, and that the ophthalmia was not relieved during the three months after the cicatrization of the fistulæ, I again suspended the treatment. In June I applied a blister to the neck: this caused abundant suppuration, and at first the eyes were a little improved. This blister was kept open three months, and a grain of iodine taken a day; but the ophthalmia continued as bad as ever, and I suppressed all treatment on the 20th September. A month after, Olivier became one of the bath servants in the hospital, an employment which, every-where laborious, is still more so in the Hôpital St. Louis, where, from the insufficiency of necessary accommodation, the attendants are subjected to increased labour. I, on this account, recommended him to seek some other kind of occupation. I sometimes see him still, and, with the exception of the ophthalmia (which, however, does not cause any annoyance), he continues free from disease.

§ IV.—IODINE IN CUTANEOUS SCROFULA.

1.—*In Scrofulous Ulcers.*

Case VII.—Honorine Lebœuf was but six years old when her father died of old age.* Her mother at 50 then enjoyed good health; a sister, two years and a half younger, was affected with tumours in the neck. Honorine was similarly situated when between 7 and 8 years old, but the swellings disappeared spontaneously at 12. Their invasion was coincident with an eruption of boils all over the body, and

* A dangerous hereditary predisposition seems to be acquired by springing from a father too far advanced in life. In a memoir on the causes of scrofula I will show that, at least, one of these is the advanced age of the parents, especially the mother.—*Author's note.*

a discharge from the ears, which continued long afterwards, but unattended with redness or local swelling. The spontaneous resolution of the tumours was followed by an habitual headach, pain, lassitude in the limbs, and frequent swelling of the ankles.

At 23, she had very violent ophthalmia of both eyes, lasting six months, and terminating, as well as the other symptoms which existed since the resolution of the tubercles, by the appearance of the menses, which took place some months before her twenty-fourth year. In the sequel they appeared a day or two before their time, and an abundant discharge took place for two or three days.

At 24 years, six months before her admission into the Hôpital St. Louis, this patient had a warty excrescence on the back of the hand above the articulation of the first phalanx of the ring-finger. The actual cautery was applied, and the wart ulcerated and suppurated for two months. After a cure of a fortnight, the sore again opened, and there formed on the back of the hand an eruption of confluent pustules to the extent of more than the size of a five-franc piece. These pustules suppurated, and at length formed a shallow ulcer, the circumference of which was of a livid red, and the bottom covered with black incrustations. The suppuration caused these to fall off, but they were again renewed by the discharge itself.

When I saw this ulcer I was of opinion that no caries existed, and, there being no sinus, that the scrofula was purely cutaneous. The eyes were covered and small, as is usual in scrofulous patients who have laboured under ophthalmia of long standing. The belly was large, she had a goitre the size of the clenched hand, of the commencement of which she had no recollection, and of which she made no complaint.

The treatment was commenced on the 20th Nov., 1828.

In the first fortnight the ulceration became less moist, and the crusts on its surface extremely thin; in the second, the local action of the ointment was less energetic, the edges of the ulcer commenced to sink down and to retract, and the red livid circle with which it was encompassed became proportionately diminished.

On the 19th January the hand was nearly cured. There were now remaining only some very thin crusts, beneath which the skin was free from ulceration; but crusts were still formed in the nose and round the lips, and at their commissures some very minute pustules existed. On the 14th February the hand and nose were both cured, but the goitre had not entirely disappeared; the trifling portion of it which remained was, however, free from ulceration.

Although the iodine in this case successfully vanquished a scrofulous disease of the skin, and a goitre, nevertheless I should not conceal a disadvantageous circumstance, from which a relapse may be apprehended. It will be remembered that the menstrual discharge had only occurred in this young woman eight months before her admission into the hospital, and during her stay in it never re-appeared. After three months' amenorrhea, I applied six leeches to the vulva twice a day for three days, and I repeated this application one month after. When she left the hospital on the 23d February, 1828, I advised her to apply leeches to the same place, at the menstrual periods, in order to imitate that discharge as much as possible; but I cautioned her not to abuse this remedy, which otherwise or incautiously managed might exercise a very pernicious effect.

Case VIII.—Adele Lenet, aged 15, was placed under treatment on the 24th September.

The characters of her malady may be thus described: an ulcer of eight months' standing on the left commissure of the

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lips, covered with a single crust and surrounded by an areola of a red colour two lines in breadth, and invested in the mornings with small scales. The free edges of the lips were swelled and red, pustules were scattered over the forehead, the ears were tumid, menstruation some months irregular, and slight deviation in the vertebral column from the right to left. The patient could not give any information as to the period of time when this curvature commenced.

Before the present scrofula broke out she had the hooping cough, and obstinate coryza, with incrustations in the nose, especially the left nostril; she had also been affected with bronchitis, ophthalmia returning on the slightest causes, and leaving the eyes covered, though exempt from any corneal stains. Her mother and maternal grandmother were scrofulous; and her sister, five years old, was of the same constitution, and had already been affected with sore eyes.

During the first fortnight, the ulcer and its accompaniments assumed a better aspect. I will particularize the state of the eyes, which, though free from spots, were remarkably affected by the preceding ophthalmiæ, and which, by the use of the iodureted ointment, were rendered more open, clean, and equal, and her power of vision much strengthened. On the whole this patient was cured in thirty-two days.

2.—*Iodine in the Esthiomenic (or Corrosive) Scrofula.*

Case IX.—Margaret Bringer, aged 15 years and 10 months, had, since her earliest infancy, cervical tubercles alternating with pustules, &c. on the scalp. Her three brothers and two sisters were similarly affected; the eldest of the latter had also a diseased nose for two years.

At nine years of age she had a slow mucous fever, which lasted two years; at 12 a cutaneous eruption, after which the cervical tubercles commenced. At 14 the eruption

re-appeared in the face, commencing at the right jaw and proceeding to the nose, which, during the entire summer, was filled with crusts. After an intermission, which lasted throughout the winter, the eruption re-appeared in spring, in the same form as before, but with increased intensity. The discharge soon diminished, leaving the nose of a violet-red colour,' hard and stiff. The dry pituitary membrane no longer secreted mucus, but a clear limpid fluid, which formed incrustations on its surface. The upper lip was also red, stiff, rather swelled, and indolent. The tubercles, though of three years' standing, had disappeared on the second attack of the scrofulous affection of the nose and nostrils.

On the 25th September 1830, before the treatment was commenced, the patient had been thus affected for about six months. Her colour was animated, especially at the right side, the nose enlarged by the dilatation of the nasal canal at each side. Her eyelashes were black, and hair chesnut but scanty; her belly always large, no sign of puberty; age, 16 years and six weeks.

At the end of a month's treatment the nose, upper lip, and their circumference, were free from redness; and according to the patient's expression less "contracted." The pituitary secretion had returned to its primitive state, the nose moist, and no longer covered with crusts; the nasal discharge was not watery as before, but of the normal consistence.

During the third fortnight the interior of the nose continued better, and its evacuation more free; the upper lip and alæ nasi were still slightly hard; the left commissure rather red, was chapped in the morning; the patient felt herself warmer than usual when she moved about, and her lips were then especially painful. We should not omit to mention, that after this relapse of some of her symptoms the ointment

smarted a good deal on the lips and their commissures, where previously no pain was excited by its application.

At the expiration of three months she could use her pocket-handkerchief with the utmost facility, the nasal secretion had returned to its natural condition, and she moved her lips so easily *that she was able to whistle.* I, however, persevered in the ioduretted preparations for another month, because, from time to time, little excoriations appeared on the left commissure of the lips, accompanied by a feeling of local heat and itching, which I regarded as traces of the disease which might acquire more intensity and constitute a real relapse.

The duration of the treatment was altogether ninety-eight days. She remained in the house three months longer in charge of a sick nun, and during that time her constitution, which had already gained much from the treatment, made still further improvement. Nevertheless I resumed the treatment on the 5th April 1828, and continued it to the end of the month. This time the local action of the ointment only produced slight and transitory itchings. Similar inactivity, however, did not attend the internal use of even the weakest iodine-water, which this time, as at the first, gave rise to colics, three or four alvine evacuations daily, and a most abundant urinary secretion.

On the 17th May she left the Hôpital St. Louis in perfect health. I advised her to quit the lace or sewing business, and to return to Auvergne and occupy herself with agricultural pursuits.

Case X.—Francois Poire, aged 19, was admitted to treatment on the 24th March 1828, offering the following symptoms:—

The skin was red, indurated, hypertrophied, pustular, and bathed in pus, in a space of great extent from the chin inclu-

sive, to above the os hyoides, and about two inches at each side of the mesial line of the neck; at the right side this cutaneous scrofula prolonged itself to the level of the ear by almost continuous patches; at the left, the patches were more distinct from each other.

While examining the diseased surface beneath the chin, in order to appreciate the degree of hardness and hypertrophy of the skin, I found a tubercle larger than a nut forming the base of an ulcer larger than two francs. This ulcer was of six months' standing, and was the consequence of a rupture of a tubercle larger than the first, which had occurred in this region a year before, and by which the movements of the chin and tongue were still much impeded.

Above the left mastoid process were several cicatrices, about which tubercles could be detected; at the right side several more were equally evident: one especially, the size of a large nut, at the external extremity of the clavicle beneath the shallow cicatrix of the tubercle, with which, 16 or 17 years since, the disease first made its appearance.

In his early youth the patient had suffered no remarkable pathological event, except a feverish affection at 14, which lasted an entire year.

During six months I was obliged to remain in the stationary use of the weakest preparation, some attempts with that a degree stronger having produced too energetic an action. The ioduretted ointment always acted vigorously, and the local suppuration was very abundant. Besides the suppuration more particularly produced by the ulcerated tubercle of the chin, the hypertrophied, pustular skin of the neck discharged a copious quantity of an aqueous, extremely limpid fluid, about a quarter of an hour after the friction. A similar phenomenon I have witnessed in Lambert, Gloria, and some other patients.

The ioduretted water always caused much ventral annoy-

ance, and ordinarily produced five or six stools daily, sometimes even more. It also acted constantly as a diuretic, and even excited powerfully the salivary organs. The appetite nevertheless always continued very good and quite equal. The general constitution gained considerably, and the patient for several months remained free from the sickness, lassitude, horripilations, and other symptoms of emaciation, which he suffered before his admission into the Hôpital St. Louis.

It is unnecessary to persevere in the enumeration of the benefits of this remedy; I desist in order to avoid the superfluous repetition of the same thing. Facts still more numerous are not wanting, analogous to, and equally serious with, those I have detailed. I shall therefore only refer to the table of cured male and female patients, as well as to the other examples which I have classed amongst the patients dismissed convalescent, or those still under treatment.

In the last class, which all may come and observe in the Hôpital St. Louis, the proofs of the efficaciousness of iodine are most abundantly to be found. I shall cite but another example under this section.

Case XI.—Jean Baptiste Sambion, aged 26, was admitted into the hospital for an esthiomenic cutaneous scrofula, which devoured his face for nearly a year, and of which the following were the principal characters:—

Ulcer beneath the left cheek, covered with a yellow, hard, thick crust, having a firmly indurated base. Eighteen years since, this ulcer formed the point whence the general disease proceeded; the left ala nasi was corroded to the extent of two lines; the right a little less so; and both exhibited hard and thick stalactitic indurations. These crusts

were less marked on the lobe and back of the nose; the right jaw was less affected than the left. Above the base of the jaw at each side were crusts similar to those on the nose; beneath, several cervical tubercles were situated, some of which were greater than the terminal phalanx of the thumb, the majority sufficiently moveable, and all of a date prior to the invasion of the cutaneous scrofula. The interior of the nose was dry and filled with crusts, and the respiration thereby impeded. Some incrustations still existed on the eyebrows. The lower lid of the left eye was everted, the skin of the face generally red, livid, indurated, and hypertrophied, nearly deprived of sensibility. The jaws and lips had also nearly lost the power of motion; habitual headach, occasionally most acute, and even seeming to impair the intellectual faculties.

Sambion was nearly a year under treatment, and the free edge of the right nostril is now the only point where incrustations (and those very minute) are formed. The nose is still a little dry and stiff at its internal surface, especially during the night: its circumference is no longer lichenous. The movements of the jaws and lips have besides recovered their full freedom, and the eyelid is less everted. The treatment was discontinued on the 1st of January, and no retrocession has since occurred.

We have thus, on the whole, been moderately successful in the treatment of the corrosive scrofula. The table of the patients still under treatment affords additional room for our therapeutic experiments.

Supplementary notice.—Especial attention should be given to the case of the scrofulous young man, who entered the hospital labouring under a pustular scrofula of the entire internal surface of the right lower extremity, with a white swelling of the knee, and two fistulæ in the ham; the leg bent to

a right angle on the thigh; who remained bedridden for two months, and who walked for two months more upon crutches; but who at this time renders himself remarkable by his pranks and activity in the walks.

The cases of Guibert, de Mortreux, de Mestard, are also deserving of attention, as examples of effects of iodine hitherto unexampled. An exception to these favourable results is to be found in the case of Richy; who was at first much improved, but subsequently remained in a stationary position. The obstinacy of this case is perhaps to be attributed to the nostalgic state of mind of the patient, and the remissness with which he followed the iodine treatment.

I should not leave unknown a difficulty which has presented itself to me in the drawing up of several of these cases: I always make use of the word *tubercle* to express those subcutaneous or splanchnic tumours, of ovoid shape and encysted structure, so frequently met with in scrofulous cases; I consequently cannot employ the same term to describe the eminences, more or less hard, deep, and extensive, which are felt on the surface of the dermoid tissue.

At first this difficulty led me to designate as *scrofulous hydatids* the subcutaneous tumours which I now call the "scrofulous *tubercle;*" but this innovation of language having appeared to me premature, I have laid it aside, and termed "pustules" the little eminences which vegetate in the cutaneous tissue, or which project on its surface. This name may at least rigorously belong to them, since they contain within themselves a cause of suppuration which seldom fails to develop itself.

§ V.—IODINE IN SCROFULOUS CARIES.

The cases of scrofulous caries have given us much employment, and but few results, even such as might have been

reasonably expected. The subjoined case is the most satisfactory we can yet present.

Case XIII.—Michelot (Claude), æt. 22, crystal cutter, had five brothers and a sister older than himself, in good health. His father and mother died in a good old age.

From infancy this patient was subject to a cutaneous eruption, which returned annually four months of winter, and was accompanied with swarms of lice. At 10 years old this periodicity ceased, and he enjoyed good health till 15, when growing fever supervened, during which he passed four months in bed, almost deprived of sensibility; and he preserves no recollection of what he then experienced. An abscess, as large as an egg, in the left leg, on the middle portion of the spine of the tibia, followed on this condition, and retained the patient in bed two months longer.

When 18 years old, he worked four or five months of the winter season in an excavation then being pierced through the mountain of Pouilly, to permit the transit of the canal of Bourgogne. Three hundred labourers were employed on these works, and their health was generally good. Michelot's elder brother experienced no change in his health; but he caught cold himself, which induced him to change his trade, and proceed to Paris.

Eighteen months after his arrival he began to spit blood; and the hæmoptysis was twice so profuse that he stated that he vomited blood. Having returned to his native country, where he led an inactive life for three months, the hæmoptysis disappeared, and has not since returned.

At 20, he came back to Paris; and fifteen days after his arrival he experienced a painful swelling of the right jaw, which annoyed him in eating.

Two years later he was directed to me, at the Hôpital St. Louis; having already been sent away from two other hospitals as an incurable subject.

Considerable tumefaction of the right jaw, presenting a scrofulous ulceration of longitudinal form, the consequence of an incision; hypertrophy of the ascending branch of the lower jaw; anchylosis of the temporo-maxillary articulation. The two jaws were so closely set as scarcely to be a line asunder when held apart; rather less difficulty being experienced at the left side, through which was introduced some nourishment, which the patient could not chew. There were, moreover, two tubercles beneath the jaw, of the size of nuts, ulcerated for three months.

The left knee, after fatigue, was a little swollen externally; there was a tubercle beneath the patella, of the same duration as those in the neck.

After four months' treatment, the right side of the face and neck being nearly cured, and the movement of the jaws recovered, the right knee became swollen, painful, stiff, and readily fatigued. The knee was immediately bent on the thigh, and the patient put to bed. Three months after, the knee became ulcerated in five points of its external surface. The ulcers were deep, large as a franc piece, having hard edges. Three were fistulous, and terminated at the patella, the movements of which produced a light crackling sound. The skin was hardened, of a violet colour, and *syphilitic aspect;* intensely acute local pain; fever, restlessness, and want of sleep; anorexia, and rapid emaciation.

After four months of a new treatment by frictions of the proto-ioduret of mercury,* there only remained a single fis-

* In the cases of Michelot and Guibert I have made use of the proto-ioduret of mercury, on account of the coppery colour of the diseased surface; a tint which, in certain scrofulous cases, I consider to be decisive of an hereditary syphilitic taint, more or less removed. I have, besides, tried this remedy in a case of corrosive scrofula of the nose and upper lip, showing the syphilitic aspect, and which is nearly cured. I have also employed it since April in several other refractory patients—Sambion especially, see Case XI., and with much success.—*Author's note.*

tula, without an external ulcer ; the swelling of the knee had subsided ; he could walk in the court, without more pain in the leg recently diseased than in that of the opposite side. The treatment was continued four months longer, without inducing the cicatrization of the remaining fistula.

During the first quarter of this year the treatment has been suspended ; but having been resumed since the month of April, the fistula has become less deep, and presents a marked tendency to cicatrization. The patient has so recovered his strength that he is able to serve as an hospital servant ; an employment which, though laborious, neither occasions fatigue or causes a relapse of his disease.

RECAPITULATION OF THE PRECEDING STATEMENTS.

But neither the unexpected success which we obtained in the preceding case, nor that which we related in the chapter on esthiomenic scrofula, nor the cure of Olivier, whose history we gave in the chapter on scrofulous abscess, and who might without effort have been placed under the section of carious cases—not all these united successes (which have been the objects of admiration to the strangers who have frequented the clinic of the Hôpital St. Louis during the preceding summer) could compensate for the too numerous examples of scrofulous caries, which, though at first much ameliorated by the treatment, subsequently, nevertheless, remained in a stationary condition, even though the general health of the patients was much improved under the influence of the iodine preparations.

I should moreover add, that since this memoir was first prepared, I have continued my researches, and that at present more happy results in the treatment of hypertrophy and

ulceration of the bones, than I obtained in the experiments closed on the 31st of December, 1828,—those, namely, which alone served for the composition of this memoir, which I had the honour to present to the Academy on the 16th of last February.

The importance of the facts I have related is so great, that I shall not venture to comment upon them at any length. Eugene Chateau, Francois Poiré, Claude Michelot, Marguerite Bringer, are among the first scrofulous cases I treated. I did not place them under the same head on account of the cruelty of informing them that no hope was entertained of their cure.

Richard, affected with a disease which had mowed down eight of her brothers and sisters, and who saw before her, in sad perspective, a scrofulous sister two years older than herself, and labouring under thoracic disease, with tubercles in her lungs.

Adele Gandil, the offspring of a tubercular mother, and herself affected since the age of 10 with scrofula in its worst form.

Amand Olivier, under similar hereditary circumstances to Gandil, labouring under four fistulæ in the most dangerous vicinities, and which entitled us to apprehend the worst from the state of etiolation, debility, and emaciation, into which profuse suppuration of four years had thrown the unhappy patient.

These facts, and a still greater number yet remaining to be described, place iodine in the rank of the most active and efficacious remedies which the art of healing possesses, its introduction into medicine should therefore be considered as one of the most precious improvements in that science.

We have before our eyes patients attacked with scrofulous lesions, usually productive of a state of marasmus and colliquation, and which, under the influence of iodine, energe-

tically resist the inroads of the disease. In some, even of this description, a marked tendency to cure is observable—too weak or transitory, it is true, to permit the encouragement of rational hope. Under this head are particularly placed cases of caries and of certain tubercular tumours of great magnitude, and which could be expected to yield but tediously to the influence of curative means.

It may thus be seen that I do not silently slur over the cases, too numerous, which have proved refractory to the remedy. Informed,* as I long since have been, on the wide extent of the evils inflicted on science by the abuse of universal propositions, I felt it my peculiar duty to elaborate my researches independently of such dangerous influence. The obstinate cases, those most distant from the supposed general order, are far the most interesting objects of study—in these we are to find the road to the immediate and ulterior progress of science; for it is evident, that when these shall have been understood—when they can be referred to some acquired truth, this truth will become more generalized, and knowledge proportionately advanced.

* Discourse on the natural system of ideas applied to the teaching of medicine, delivered on the 16th of November 1816, on the opening of a course of internal Pathology, by J. G. A. Lugol. Paris, 1815.

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PART II.

AN INQUIRY INTO THE EFFECTS AND MODE OF EMPLOYMENT OF IODURETTED BATHS IN SCROFULOUS DISEASES.

AUTHOR'S ADVERTISEMENT.

On Monday, 14th December 1829, I had the honour to present to the Royal Academy of Sciences my Memoir on the Employment of Iodurettted Baths in Scrofulous Diseases, and the Academy named, as commissioners, MM. Magendie, Dumeril, and Chevreul.

More recently, having prayed the Academy to have the goodness to admit my labours on iodine into a competition, in the decision of which the commissioners were to participate, they thought it their duty to refrain from any delivery of their opinions which might anticipate their future judgment, and they consequently advised me to publish my memoir.

PREAMBLE.

Since the publication of my Memoir on the Employment of Iodine in Scrofulous Diseases, the use of this remedy has

become so general, that for a few days it could not be procured in Paris, and its price has been considerably increased.

If I may judge by my external intercourse, it is not at Paris alone that iodine is at this day employed in the treatment of scrofulous diseases. The same experiments are, and have been, repeated in the provinces and in other countries, especially in England, where this remedy is prescribed according to the formulæ I have published.

Indeed, scrofulous diseases having been long and unanimously deemed incurable, practitioners should justly receive with eagerness a new remedy, which has extricated them from the annoying necessity of practising various methods of treatment in which they had no more than a doubtful confidence, having been so often convinced of their total inefficacy. The reception of my researches amongst the profession should be the warmer still, from their having been published under the auspices of the very highest recommendation, from their having been verified in the Hôpital St. Louis, and from the number of cures having been found to exceed what I had announced.

If I do not hesitate to recal attention to a precedent so honourable to myself, it is because I have only received it as an encouragement to continue my labours with the same zeal in which they were commenced. In truth, the task I have undertaken is far from drawing to an end, since it embraces the general and particular methods of treatment of scrofulous diseases.

This task, however, to me, daily becomes more easy of performance, from the station which I occupy, but especially by the assistance I derive from the experience of some excellent practitioners who make use of the iodine preparations, and who behold patients, hitherto incurable, successfully treated by iodine, sometimes with a rapidity which excites their astonishment.

I shall labour at this method of treatment until I have arrived at its development with the same certainty as that with which I teach, in my courses of internal pathology, the mode of curing intermittent fevers by cinchona, syphilitic diseases by mercury, bilious fevers by emetics and purgatives, and ordinary inflammation by general and local depletion.

Before the publication of my first labours on iodine M. the professor Dumeril had applied it in the happiest manner, and many of the scrofulous patients I showed him, interested him the more, as he had himself successfully treated similar cases.

M. Magendie has used iodine in many ulcers of the face frequently observed at the Salpetriere, and which are generally scrofulous sores degenerated into a cancerous condition. More lately, this learned practitioner has more particularly directed his attention to the use of the hydriodate of potash in epilepsy and hypertrophy of the heart.

M. Serres, one of our contemporaries, who most successfully endeavours to generalize ideas, possessing as he does in the highest degree the art of experiment and observation, has zealously tested the virtues of iodine in several scrofulous cases, and with not less success than MM. Magendie and Dumeril.

M. Baron, professor of internal pathology, before he became a special practitioner, and whose exclusive practice is nearly of the same character with that which this hospital appointment confines me to, has made use of iodine, and obtained successes he never derived from any other remedy.

A practitioner, whom I cannot omit, M. Bailly, physician to the Hotel Dieu, has treated several patients at the Hôpital St. Louis in the mode I pointed out.

At the Hôpital St. Louis my personal experience is

strongly confirmed by that of my illustrious colleagues, MM. the professors Alibert and Richerand, whose friendly zeal for my public success I had to expect from the encouragement they had already accorded to my private labours.

My respected colleague and friend, M. Jules Cloquet, has tried several experiments on iodine at the Hôpital St. Louis, and, with a generosity not surprising to those who know him, has sought to invest me with the merits of his success.

I might largely increase the nomenclature of the practitioners who recommend this remedy, whether in scrofulous diseases, or in those of an analogous kind; but I am not here writing the history of the malady, and I think I have cited a sufficient number of authorities to sustain the confidence of practitioners, and to induce them to confide still more extensively in the employment of iodine.

In the history of the medical art it would be difficult to mention a new remedy so generally received. Is this because no accidents have been produced by iodine since it has been prescribed in the doses and according to the formulæ I have recommended? I have, I trust, sufficiently explained the sources of these accidents, and the manner in which they may be avoided.

The new mode of the application of iodine, which constitutes the subject of the present memoir, appears to me to widely enlarge its therapeutic domain. Ioduretted baths are at least as effectual an auxiliary in the treatment of scrofulous diseases as sulphuretted baths in those of a cutaneous kind; and as some eminent practitioners do not restrict the employment of sulphureous baths to cutaneous affections alone, in the same manner the ioduretted baths will eventually be employed to fulfil indications less limited than those within which they are at present restricted.

MEMOIR ON THE EMPLOYMENT OF IODURETTED BATHS IN SCROFULOUS DISEASES.

For more than two years I have directed my therapeutic labours towards the discovery and publication of the degree of efficacy of iodine in scrofulous diseases, and I have had the honour of calling the attention of the Royal Academy of Sciences to the results which I obtained in seventeen months' investigations.

These results, which I related with the most rigorous impartiality, have all been verified at the Hôpital St. Louis by the honourable members whom the Academy appointed to take cognizance of them; and my learned reporter has taken the pains of more decisively exhibiting their utility by a summary and broadly-traced table of the extremely numerous and unhappily most common cases, hitherto deemed irremediable, but the cure of which I had succeeded to accomplish.

As a sequel to my first memoir I have drawn up a second, in which I make it apparent that the success of iodine has not been retarded; I also propose to myself to publish in like manner the progress I make in this method, accordingly as that progress has been duly ascertained. This mode of proceeding appeared to me the most easily to be pursued; but the fear of wasting the time of the Academy has decided me, for the future, not to treat of iodine relatively to scrofulous diseases, until I can present the general mode of treatment with all the deviations which different species of the malady may require.

In the meantime I have deemed it right to publish a new mode of applying iodine, of which I have the priority of invention: I mean the ioduretted baths.

These baths have not yet constituted part of the particular

treatment of the scrofulous cases, on which I continue my researches in the Hôpital St. Louis. I have only employed them in this hospital in order to make some comparative experiments on the respective action of the iodide of potassium (hydriodate of potash) and that of iodine; in town and country practice, however, I have used them in all the cases concerning which I have been consulted, and I have acquired the certainty that they materially accelerate a cure.

Before the publication of this essay, I could have wished that the practice had arrived at rather more maturity. But the ioduretted baths having been made known in my clinical lectures, I dreaded lest the tradition of their effects, experiencing the common fate of all oral traditions, might have been an incomplete and consequently dangerous announcement. In the sequel it will be admitted that I am right in preventing, by the most prompt publicity, the evil effects which may result from ioduretted baths, prepared in stronger proportions than those I have directed.

For the present I propose to make known the most suitable materials for the construction of the baths themselves, the strength of the solution of which they are composed, the proportion of the ingredients, and their respective modes of action.

After having related some particular cases of scrofulous diseases in which these baths have been used, I shall conclude by some observations on these baths relative to the ages of the patients, presented, for facility of reference, in a tabular form.

I at first directed my attention to the most proper material for containing the iodine solution, and it was evident, in consequence of the strong tendency of iodine to form chemical combinations, that of whatever materials the bathing trough was composed, it would deprive the iodine of a part of its

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efficacy, consequently I chose that substance which offered this inconvenience in the slightest degree.

Zinc, recommended for sulphureous baths, cannot be used here on account of the facility with which it converts the iodine into a soluble ioduret, possessed of properties still undetermined, but certainly different to those of iodine.

Tin, although less readily attacked by iodine, when pure and in a very dilute solution, offered little more security, because being obliged to dissolve the iodine in the hydriodate of potash, I had reason to apprehend the formation of a double ioduret, the particular properties of which might complicate my therapeutic results.

I therefore confined myself to troughs of wood, which only transform with great slowness a minute portion of iodine into hydriodic acid, and the effect of which besides gradually diminishes, since the wood, by use, loses its extractive matter, and becomes impregnated wlth iodine.

We should deceive ourselves much if we calculated on the effects of iodurettted baths, from the data afforded by the action of the iodurettted mineral water already described.

For my own part, whatever notions I might have entertained in anticipation, of the action of iodurettted baths, I could not, I confess, foresee to what degree the iodine thus used might prove energetic. Thus I took into consideration, 1. The greater surface presented to the immediate action of the remedy; 2. The facility with which all the parts of the liquid could come in contact successively with the skin, and yield it a portion of iodine, so that the remedy would act less in proportion to its relative than its absolute quantity, compared with that of the fluid in which it was dissolved; 3. The increase of energy which might result from the elevated temperature of the bath in the action of this volatile remedy.

Each of these conditions has been appreciated carefully, and in a spirit of caution which should enhance the value of the resulting observations. I thought my first formula was very weak, nevertheless this dose, which I proposed to increase gradually, became eventually the maximum which I found I could not safely exceed.

My first formula was composed of one ounce of the hydriodate of potash, and an half ounce of iodine, dissolved in twenty ounces of distilled water, and next diluted in the quantity of water necessary for a bath; but this bath having produced intense rubefaction of the skin, I reduced it in the sequel one-fourth, and composed the bath for an adult with six drachms of the hydriodate of potash and three of iodine.*

With this formula, which is the strongest I at present employ, I have administered the ioduretted baths to a great number of persons. The following observations are of importance to be attended to.

The lady first experimented on had still her skin too intensely reddened.

A young lady of 17 could not support it; her skin was reddened, especially at the neck; and what was evident to the view, and well worthy of remark, was, that the skin of the neck where it was tubercular was more reddened than at the opposite side.

A young lady of 18 (see Case V.) could not endure the bath at this strength.

* The hydriodate of potash, as was first ascertained by M. Bauf, apothecary at Vevay, can, in concentrated solution, dissolve twice as much iodine as it contains itself (once and a half its own weight); but as this solubility of iodine diminishes in proportion to the increase in the quantity of water, I have adopted the proportions recommended by this apothecary, namely, one part and a half of iodine, to one of hydriodate of potash. It, besides, appeared to me useful not to change an established formula, and one generally followed.—Author's Note.

Another, æt. 7, found it also too irritating, and on one occasion could not be kept in the bath.

The child of four years old (the subject of the third case) was powerfully rubefied, and had its penis inflamed by a bath composed of five buckets of water, and one-fourth of the iodine solution prepared for an adult.

A school-boy, æt. 15, was powerfully rubified, as well as his father, who stirred up the bath with his arm, in order to render the solution uniform, to estimate its temperature, and to judge, by his own sensations, if the bath smarted so severely as his son asserted.

M. ——, æt. 25, had the skin much reddened, and that of the penis inflamed for several days, so much so that he was feverish at one interval for thirty-six hours.

Now, the bath which produced these accidents contained about three drachms French, or about 216 grains of free iodine for 240 quarts of water, that is, about nine-tenths of a grain per quart. But I have long since been in the habit of administering internally, without inconvenience, a grain of iodine daily in twelve ounces of the vehicle, to the majority of my scrofulous patients in the second period of their treatment. I daily caused the eyes, nose, and lips, to be bathed, and fistulous channels to be injected with a solution containing three, four, or five grains of iodine to the pound of distilled water.

In certain scrofulous diseases of the skin, tubercles, cellular tissue, &c., I have found an iodurettted solution of half an ounce of hydriodate of potash and two drachms of iodine, in eight ounces of water,* to act as a powerful rubefacient and caustic.

* I have prescribed this iodurettted liquor for the past nine or ten months, to be added in sufficient quantity to poultices of linseed-meal, which I have applied to excessive growths, and scrofulous caries.

It serves equally for local baths to the hands, feet, chin, &c,, by adding a certain quantity of it to the necessary proportion of water.

Now, if we compare the proportion in which the iodine exists in an iodurettted bath, with the dose contained by the other preparations of which we have spoken, the energy of the baths will appear much more surprising. The quantity, compared with that of the mineral water for drinking, is only as one-third; compared with that for bathing the eyes, nose, and lips, it is little more than a seventh, ninth, or eleventh. Relatively with the solution which I mix with the cataplasms, or which I apply alone, to produce rubefaction in certain conditions of scrofula, it is only 1-640th. On these data, who would, *à priori*, have imagined that nine-tenths of a grain to the quart of water could have produced so decided an effect on the surface of the body? Nevertheless, such was the effect that I have not been able to resume the first formula, and that I have been obliged to substitute for it two others of lower strength; the first of these contains five-sixths, the second four-sixths, of the original quantities. Except under particular circumstances, I commence with the former.

A lady, æt. 22, already mentioned, found even this too strong. For the young lady of 17 I was obliged to return to the latter, with which I had commenced. The stronger, continued for fifteen days, had produced desquamation of the

It is also very useful for touching certain surfaces which require excitement, especially palpebral ophthalmiæ, ozæna, ulcers, and the extensive surfaces in the corrosive or esthiomenic form of the disease.

In the cases where I found it necessary to touch more deeply I used a formula composed of six drachms of iodine and four of hydriodate of potash, dissolved in the smallest possible quantity of fluid.

I no longer employ any other mode of cauterisation for any case of scrofula; I have particularly applied it to the edges of the esthiomenic kind when it appears spreading, and also to a particular kind of pustules which remain insulated by the cure of other adjoining pustules, and which, unless their defective mode of vitality be altered, are exceedingly tedious in their cure.—Author's Note.

epidermis on the legs and arms. The yellow tint of the body was also very decided, and scarcely disappeared in the intervals of the baths.

M. ———, æt. 24, had taken the bath No. 2, at 98 Fahren., and experienced no local action. The second bath, at a day's interval, at 100 Fahren., caused so deep a rubefaction on the anterior surface of the chest, the external and posterior surface of the arms, that the patient could not remain in the bath longer than half an hour. The fourth bath, prepared like the second at 100 F., produced the same accidents, and the patient could not continue in it longer than before.

M. ———, æt. 32, wrote to me from Rheims on the 29th of last November, that the bath prepared with the solution No. 2 caused him a sharp feeling of smarting, which lasted from five to six hours; so that I advised him to return to No. 1.*

It may, then, be regarded as a well-determined fact, that considerable difference exists in the degree of action of iodine on the same diseased surfaces, at ordinary temperatures, and when applied as a bath at a temperature of 98 to 100 Farenheit.

This difference cannot be attributed to the hydriodate of potash, the action of which, as we have proved further on, is little or not at all remarkable, even to the extent of two or three ounces: its influence in the quantity of six drachms, should be therefore inappreciable.

Neither is it exclusively due to the weak affinity of the iodine for the hydriodate of potash, and its volatility permitting the former to be disengaged by the heat from its combination, and set at liberty in the liquor; for the iodine is in the same state in the solution for external use.

* For a table containing formulæ for the preparation of the baths, see APPENDIX.

It necessarily follows, then, that by the combination of heat, moisture, &c., already described, the skin becomes more porous, penetrable, and apt for the absorption of the iodine. At first I attributed this increase of effect to the heat alone; but though a more rigorous analysis points out to us other concurrent causes, heat, nevertheless, is still entitled to be regarded as the principal agent. The activity and salubrious nature of the thermal native mineral waters are well known, although chemical analysis only shows us, in their composition, exceedingly minute quantities of ingredients. It has often been asked, What can be the common principle by which these waters act so efficaciously on the animal economy? Many practitioners do not hesitate to attribute the effect to the heat alone.

Is it this agent, then, which multiplies twenty fold the effects of iodine in the ioduretted baths? Whatever may be the explanation eventually received, my end will be accomplished if the observations I have made have pointed out the degree of strength necessary for these baths. This I proceed to render still more evident by the recital of some experiments practised at the Hôpital St. Louis, to study the respective action of the ingredients of which the baths were composed.

EXPERIMENTS TO POINT OUT THE RESPECTIVE ACTION OF THE HYDRIODATE OF POTASH AND OF IODINE IN IODURETTED BATHS.

I have always considered the hydriodate of potash as a mere neutral ingredient, only serving to dissolve the iodine, and no otherwise participating in the therapeutic agency of

the ioduretted baths. We shall immediately see that their energy is, in fact, almost exclusively due to the quantity of iodine added in excess.

I have employed the hydriodate of potash alone, and gradually increased its quantity to three ounces. I have tried iodine in the proportion of three drachms, and three drachms and one scruple, to each bath.

Lastly, I have studied anew the effects of the mixed solution of iodine and hydriodate of potash.

For the subjects of those experiments I chose seven patients, which represent the greater number of genera in my nosology of scrofulous diseases. I subjoin their names and the summary of the actual state of their diseases.

Planque, æt. 15, no trade, tubercular scrofula on the left side of the neck, with the complication of melitagra (Alibert) on the jaw of the same side.

Asselot, æt. 16, double ophthalmia, ozœna, hypertrophy of the lips, melitagra spread over eyelids, nose, lips, chin, and jaws.

Bonneville, æt. 25, carter, tubercular, cellular, and cutaneous scrofula, of the deepest and most extensive kind, on the left side of the neck, and on the left superior and anterior region of the chest; convalescent.

Barbier, æt. 18, joiner, cured of an esthiomenic scrofula, occupying all the internal surface of the right lower extremity.

Guibert, æt. 24, esthiomenic scrofula, occupying one side of the face and neck, the nose and chin; far advanced in convalescence.

Caron, æt. 15, tubercles on the neck, and also in the infra-spinous region of the right scapula; caries of the two first

phalanges of the ring finger; hypertrophy of the right metatarsal bone.

Mornon, æt. 20, cured in eight months of a complete spontaneous luxation of the right thigh.

I content myself to point out briefly the state of the patients who have served for the experiments I proceed to describe; and the sole object of which was to seek the best chemical composition of the iodurettted baths. It was not my intention to demonstrate by them the therapeutic effects which these baths might exert.

BATHS OF HYDRIODATE OF POTASH WITHOUT FREE IODINE.

First Experiment.—Sunday, 8th November, 1829, I ordered the seven patients to bathe in a bath prepared in a trough of wood, at 98 Fahren.; and into which I added, at the moment each patient entered, an ounce of the hydriodate of potash.

The patients remained in the bath forty minutes.

Planque, slight itching for a few minutes after coming out.

Caron, weak itching in the diseased right foot, after a quarter of an hour.

Mornon, slight and transitory itching also, after the same period. All the others experienced no peculiar sensation.

Second Experiment.—Monday, 9th November, 1829. The bath was prepared at the temperature of 100 Fahren. The patients remained in forty minutes. They experienced no

local action whatever from the presence of an ounce and a half of the hydriodate of potash.

Third Experiment.—Tuesday, 10th Nov. 1829. Bath at 100 Fahrenheit; patients remained in forty minutes; no peculiar sensation from two ounces of the hydriodate of potash.

Fourth Experiment.—Wednesday, 11th Nov. 1829. Three ounces of hydriodate of potash to each bath, at 100 Fahrenheit. The patients remained in forty minutes.

Planqué.—General itching after a quarter of an hour, and continuing till he left the bath.

Asselot.—In twelve minutes momentary itching in the groins.

Barbier.—After twenty minutes, itching on the front of the neck, not continuing to the end of the bath.

Mornon.—In twelve minutes, itching in the hams, not lasting a quarter of an hour.

I had intended to make a fifth experiment, with four ounces of the hydriodate of potash; but the salt having become scarce for some days in the pharmacy of the Hôpital St. Louis, I gave up the experiment; I regretted this the less from the nearly negative results afforded by the four trials I have just narrated.

BATHS WITH IODINE ALONE.

First Experiment.—Thursday, 12th November. Three drachms of iodine were scattered in the bath, prepared at 100 Fahrenheit. The patients remained in fifty minutes.

A sharp itching was almost immediately produced, which,

at the end of a quarter of an hour, merged into a decided smarting; especially in the inguinal regions, on the anterior surface of the thighs, on the legs, and the external posterior surface of the arms; and which, to the greater number of the patients, was pungent and painful during the last quarter of an hour of the bath.

While this experiment lasted, I made the patients change posture three times, so that alternately their heads were at either extremities of the bath.

Planqué bathed his melitagra in the ioduretted solution. *Asselot* frequently plunged in his whole figure, in order to bathe his lips, nose, and eyes; and neither experienced any itchiness in the site of the disease; which, it is true, was at the time nearly cured.

Bonneville at first experienced a feeling of rather acute itching in the inguinal and hypogastric regions, but not extending to the seat of the disease (the left side of the neck and chest), till the expiration of half an hour.

Guibert dipped his right cheek in the bath without experiencing any particular sensation. I frequently made him wash his nostrils with the iodine solution, as well as all the other patients, especially Asselot and Bouilly,* in whom this solution caused no smarting on the surfaces either then or while recently diseased.

Mornon, on the contrary, experienced a more acute impression on the hip and lower extremity of the right side,

* Barbier was feverish the preceding night, and I replaced him by *Bouilly*, æt. 25, attacked with esthiomenic scrofula, which corroded the vomer and ethmoid bone up to the cribriform plate. On the left side the disease had attacked the nasal canal, and produced a lachrymal fistula. The nasal fossæ formed one deep excavation, ulcerated in several places, and emitting the most fetid exhalations.

N. B. *Barbier* will appear again in the following experiments; and as we shall also retain Bouilly, it will make the number eight.—*Author's note.*

recently cured, than on the rest of his body; a circumstance which I regarded as an unfavourable omen in his case.

In *Caron* the effect usually commenced on the diseased foot.

At the termination of this experiment the atmosphere of the bathing apartment was abundantly charged with iodine, which excited the olfactory organs, and caused prickling of the throat.

After leaving the baths the patients went to bed, and we visited them in half an hour.

Planqué, *Asselot*, and *Caron*, then experienced but a slight itching. Guibert, who had most smarted in the bath, showed no marks of rubefaction but on the buttocks, especially the right, which smarted a good deal. In the other patients, there was erythematic rubefaction, with itching, and even moderate smarting.

Bouilly had his sleep disturbed by itchiness, which, as well as the rubefaction, continued, and had entirely subsided on the 13th at the morning visit, though they abated altogether during the day.

In general, the rubefaction was mixed with a weak yellow colour, but this colour prevailed much over the redness in the groins and folds of the abdominal parietes above the pubis: a singular effect, for the skin being reddened only by the iodine, the redness ought to predominate wherever the iodine was deposited in the largest quantity.

Second Experiment.—Saturday, 14th November, 1829, three drachms one scruple of iodine to each bath, at 100 Fahrenheit—patients remained in fifty minutes.

In this proportion the patients quickly endured prickling, then itchiness, smarting, and rubefaction, punctuated, separated, or confluent. The limbs acquired rather a marked

yellow colour, which was especially decided on the inguinal and hypogastric regions.

The rubefaction was far from being commensurate with the feeling of itchiness, for we have repeatedly seen them to occur in the inverse ratio to each other. *Guibert*, in whom the bath produced the most vivid and general smarting, only showed reddening on the anterior part of his chest, where he had experienced a very moderate itching. In *Caron* the same phenomenon took place on the anterior surface of the thighs. In this experiment, as in the first, we took every precaution proper to favour the division of the iodine added to the bath, knowing well that the complete solution of this substance could not take place in the short space of time occupied in the operation of bathing.

Thus, after having added the dose of iodine, I caused the bath to be carefully mixed, so that the solution was at least homogeneous, and offered the same degree of strength throughout. Nevertheless, the solution of the iodine being incomplete, we have seen in the same regions the yellow tint, which, by its circumscribed intensity, could only be attributed to the simple iodine, and which it would be difficult to refer to any other cause.

When we examined the patients in bed, they continued to feel acutely the effects of the bath, and all offered the yellow tint more strongly than on the former occasion. *Asselot* had several returns of the itching in the evening. *Bonneville*, at the end of the second day, still experienced an acute prickling in the groins. *Caron* and *Bouilly* in like manner experienced the same sensation on the morning of the third day.

In all, *Planqué* excepted, the rubefaction proceeded to the desquamation of the epidermis in several places, especially on the arms, backs of the hands, and anterior surface of the thighs and chest.

Three drachms and a scruple of iodine having produced local phenomena so decided as those we have just related, I felt it right to decline experimenting on a larger quantity. I contented myself then by repeating the second experiment on Monday, the 16th of November, in order to see if the effects were as intense and durable as on the first occasion.

They were, in fact, still more powerful, especially for Guibert, Bouilly, and Caron, who experienced painful smarting during a great part of the day.

For these reasons we should consider this dose of three drachms and a scruple as too liberal for the greater number of individuals, and recourse should not be had to it but seldom and prudently, and in the particular cases in which inferior doses fail to produce sufficient effect.

This energetic action of a weak dose of iodine diluted with such a quantity of water, at first astonished us a good deal; but in medicine we must not stop short when surprised; the phenomena are to be observed, and their cause to be investigated: for, in the same degree, and under the same circumstances, it always exists.

M. Gay Lussac tells us that iodine is only soluble in 7,000 times its weight of water. Now, according to this calculation, a quart of water being capable of dissolving $2\frac{69}{100}$ grains of iodine, why did not this solution take place in a bath which only contained, at most, 1 grain to the quart?

The difference may depend on the length of time the iodine takes to dissolve in water, and the bathing time being consequently too short to permit its total solution; in like manner sea-salt dissolves in three times its weight of water; but this solution cannot be effected in less than a given time, before the expiration of which the salt will be still found in crystals in the liquid.

I should not omit to speak of two circumstances which

occurred after the preceding experiments, and which appeared to me to result from the precipitation of the iodine and its adhesion to the sides of the bathing-trough. Some hospital patients were bathed in the same apparatus we had just used—all experienced an unexpected effect, and they asked what was in the bath that smarted their skins.

The next day the females in like manner experienced a decided smarting, although the baths had been filled with cold water during the entire night. These effects, it is true, were but slight, and of short duration, but having been well ascertained, should not be passed over in silence.

Third Experiment.—Tuesday, 16th September, 1829. Three drachms of iodine dissolved in alcohol added to each bath. In order to obtain a more complete solution of the iodine, I dissolved 3 drachms of iodine in 6 ounces of rectified alcohol, and poured this tincture into the bath prepared at 100 Fahrenheit.

The *immediate* effects in this case were not so decided as in the former experiments, and were scarcely more intense than those observed in the first experiment, also performed with 3 drachms of iodine. But we had besides to observe many peculiar phenomena, as when the alcoholic solution was poured into the bath, violent vapours were seen to play on the surface of the water. In a few seconds the atmosphere became surcharged with the iodine vapours to such a pitch, that before the end of the bathing we were much inconvenienced by irritation of the eyes, nasal fossæ, and pharynx. M. Arnal, my house-pupil, was consequently affected with coryza, and my own chest was much distressed for several days. A servant-man, while stirring Asselot's bath, felt severe smarting in the eyes, but after passing a short time in the open air, he was able to resume his attendance. The experiment was

scarcely finished, when the iodine odour escaped into the hospital courts; an effect much less remarked in the preceding trials.

The iodine solution was at first of a deep yellow colour, but, as usual, it became pale at the end of the bath.

In three quarters of an hour we went to examine the patients in bed; the effects were most decided in *Planqué* and *Asselot*.

Bonneville complained of heat in the back, which was rather tumefied; his body was slightly yellow all over, and reddened in various places.

Barbier had already fallen asleep—trifling general redness, yellow tint on the thighs and ancles. The patient said that this bath had made a greater impression on him than the others.

Guibert had felt very smart general itching half an hour after the bath: he showed traces of slight rubefaction generally over the body, mingled with a weak yellow tint.

Caron had experienced for half an hour a general feeling of itching. The body generally tumefied, was especially so at the lower extremities, and most on their anterior and external surface; yellow patches existed over the skin, but the itching had ceased except over the thighs.

Mornon,—general itchiness, occasionally aggravated, moderate general rubefaction, yellow tinting of the legs and groins, especially of the right side.

Bouilly,—general sensation of itching, strongest on the legs, thighs, and groins; also extensive rubefaction, mixed in several places with yellow spots.

We will first observe, that the local phenomena were on this occasion diffused more generally and uniformly, which could only result from the more complete solution of the iodine. But what is still more remarkable is, that the effects of the bath, far from diminishing by time, as in the first ex-

periments, were longer continued, and offered a new order of phenomena, which appeared to us of much interest.

Planqué passed the day sufficiently well; but during the night he had cough, headach, and fever. After an intermission which lasted all the second day, this febrile state returned in a more moderate form the second night. The third day all the effects had ceased.

Nothing particular took place with *Asselot*.

Bonneville had a discharge from the left side of the face, which lasted, without any ill consequence, for eleven hours.

Barbier immediately relapsed into the drowsy state from which we had aroused him, and he continued so all the day. The following night he was sleepless from the continuation of the headach, which the patient attributed to the strong smell of the iodine.

Second day.—The headach was not relieved by two fits of epistaxis. A third nasal hæmorrhage, which took place at three in the morning of the second day, relieved the brain very decidedly. On the third day he was still weak and wanted appetite.

Guibert, one of those most acted on by the bath, experienced no immediate local accident. On the following days he complained of lassitude in the limbs, and of deficiency in his usual appetite.

Caron, for two successive days, about 4 P. M., experienced a general sensation of itching, particularly on the back, limbs, and groins. During the night he slept but at intervals. He fell asleep while suffering much itching; during his sleep a lethargic stupor supervened, from which he could scarcely arouse when awakened.

Mornon at first only experienced the immediate effects of the bath for an hour and a half. The following night, heartburn, headach, feverishness and stupor, and a kind of trembling in the limbs. The second night was like the first.

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The third night rather better, especially after a nasal hæmorrhage, which supervened at 3 A. M. Up to this time he had also been unwell during the day; a state, however, only the continuation or remission of the nocturnal symptoms.

Bouilly, no rubefaction, itchiness lasted but three or four hours, and since then the patient felt no other effect besides a slight smarting in the left nostril.

These phenomena, so much more intense, durable, and numerous, than in the three preceding trials, are not they the effects of the abundant vapours of iodine which escaped from the surfaces of the baths, and in which the patients were enveloped?

The headach is a peculiar result in this experiment, and in Planqué, Caron, and Mornon, but especially in Barbier, amounted to a species of intoxication. The cause of nocturnal periodicity of the cerebral congestion in the three first cases still remains a subject of speculation. Let us observe the difference of this congestion in the three individuals: in *Planqué* the disordered brain produced only a sympathetic cough, which I might venture to call a paralytic symptom in its most rudimental condition. The same remark applies to the cardialgia in *Mornon*. In *Caron* we have torpor of the limbs; in *Mornon* spasmodic movements; two effects slightly differing in their nature, but perhaps only degrees of the same affection oppositely expressed by different patients.

As to *Barbier*, the stupor commenced by the brain, but the iodine intoxication became general, and not less than three hæmorrhages were required for its dissipation.*

* Certain phenomena presented by the ioduretted baths prepared with the tincture of iodine give rise to reflections rather unfavourable, or even contra-indicative, to the internal use of the tincture of iodine, or tinctures in general. If three drachms of iodine, previously dissolved in alcohol and diluted with the ordinary quantity of water in a bath, did not remain dissolved, but was precipitated on its sides; by stronger reasons still the internal use of the tincture of iodine should be followed by the deposition of that substance

ON THE THERAPEUTIC EFFECTS OF BATHS COMPOSED OF IODINE AND THE HYDRIODATE OF POTASH.

The phenomena produced by the first and second trials of the ioduretted baths left no doubt but that when prepared without that substance being previously dissolved, they contain the iodine partly in suspension, and consequently do not present it to the skin in a state of sufficiently minute division.

In the second place, the effects which we have observed after baths prepared with an alcoholic tincture of iodine, do not permit us to have recourse to this mode of prescription.

The question is therefore implicitly resolved in the sense which my anticipations lead me to adopt; viz. that it is necessary that the iodine be dissolved in the ioduret of potash, in order to secure its equal and complete division in the ordinary quantity of water in a bath.

This is certainly to be regretted, inasmuch as it would be much easier to generalize the employment of iodine baths than those of the ioduretted hydriodate of potash, which are much more expensive. This consideration, which is by no means one of secondary interest, is of still higher importance to the hospital physician, who should always endeavour to make the greatest possible number of the poor enjoy the benefits of the remedy.*

on the internal surfaces of the stomach. I have already said, in my first Memoir, that it was iodine thus disengaged which produced the accidents occasioned by this remedy in certain cases. The experiments I have just narrated do not permit me to attribute these unpleasant effects to any other cause.—*Author's note.*

* M. Henry, fils, joint apothecary in chief to the central pharmacy of the civil hospitals of Paris, has proposed a process which will diminish much the price of ioduretted baths in hospitals. He receives the water emptied from the baths in a common reservoir and precipitates its iodine by the acetate of lead.—*Author's note.*

We must nevertheless accord the preference to the ioduretted baths, their action being more equal, regular, and above all more distinctly to be graduated, as I have ascertained on a great number of scrofulous patients.

To sum up, the phenomena produced by the researches we have related, those which we have observed in new essays on the mixed solution of hydriodate of potash and iodine Nos. 2 and 3, and which I deem it unnecessary to report in this place, these being only repetitions of what I had observed in private practice, all the results may be expressed in the following propositions :—

1. The hydriodate of potash has scarcely any action whatever in the dose of three ounces to each bath.

2. Iodine should be regarded as the active principle of the baths.

3. The proportion of iodine should generally be from two to three drachms a bath, and very seldom beyond that.

4. Pure or simple iodine is not completely soluble in a bath ; and in that case, its action being unequal, may give rise to local accidents ; and it may also be deficient in its general action on the economy.

5. Iodine previously dissolved in alcohol does not continue in a state of solution when diluted with the bath, and it moreover produces olfactory phenomena, which may proceed to a species of drunkenness, or even to decided and durable cerebral congestion.

6. The most certain mode of preparation is the preliminary solution of the iodine in the hydriodate of potash.

The efficacy of ioduretted baths in scrofulous diseases is, I believe, already demonstrated by the consequences which naturally flow from the notions I have published on the use of iodine in these diseases. But besides their general utility these baths still offer peculiar advantages—that of a substitute for the internal treatment, the doses in which may be

diminished to different degrees according to the necessity of the case, and that of affording us a mighty auxiliary in certain cases of scrofula, which the internal and external modes of treatment hitherto known, have only altered in the most tedious manner.

For the present I have only to quote some particular cases in which the use of these baths has been associated with other preparations of iodine. I propose, however, to test their virtue in different manners, and to communicate the more explicit observations I shall make in the sequel.

Case I.—A young lady, who before her marriage had experienced marked advantages from orthopædiac processes, but who had lost some of these benefits after her first confinement, showed several symptoms indicative of a new direction of the disease to her chest. The catamenia had been scanty for the two years since her confinement, but she occasionally suffered acute hysteric colics, a constant oppression and fits of suffocation which revealed congestion in the lungs.

It is too well known what is portended when these pulmonary congestions coincide with scanty catamenia in weak and scrofulous subjects. In the present case the persistence of the cough when the breathing was free, added not a little to this apprehension.

To resist these congestions by bleeding from the arm would, it appears to me, be a serious error, into which those cannot fall who comprehend the phenomenon in the light in which I regard it.

I acted then directly on the uterus by injections, pediluvia, and 10 leeches to the vulva, applied once immediately after the catamenia, so as to produce a hæmorrhage supplementary to this secretion and derivative to the pulmonary affection.

After this emission, which it was found unnecessary to repeat, the patient took three ioduretted baths a week for six weeks. The skin was much irritated and turned yellow, and the most decided effects were produced. The menses became more copious and easy for three months, the chest evidently free, and the general health much improved.

Case II.—The lady we have just spoken of, herself the issue of a mother who died of pulmonary tubercles, has a daughter, æt. 25 months, labouring under mesenteric tubercles, with great debility and emaciation of the lower extremities. The child could not yet walk by itself, she was pale, ill-grown, and had little appetite for food.

I advised a coffee-cup of ioduretted mineral water, sweetened with syrop of coltsfoot, and to give her three iodine baths weekly. The treatment was continued for three months with little benefit.

The belly has now diminished in size, has even become pliable, and tubercles can be felt within it; she walks alone, and does not fall in the apartment, and she has grown remarkably, which was particularly noticed by her father on his return, after an absence of four months from home.

Case III.—Early in the month of last September I was consulted for a boy, æt. 4, whom I have treated at Amiens, and of whom the following is the history.

Since the age of 18 months almost habitual cough, impeded respiration, which during sleep is accompanied with wheezing. At two years of age ophthalmia of both eyes; the catarrhal state of the chest increased uninterruptedly, and three months later the infant nearly perished of croup.

At two years and a half hypertrophy of the first phalanx of the right great-toe, which continued fistulous for eleven months.

At three years and eight months a scrofulous abscess, free from pain, formed very rapidly on the right hip, having left when I was consulted three fistulous canals.

During eight or ten days that the suppuration was less abundant from these fistulæ, the great-toe, then three months cicatrised, again became fistulous, the ophthalmia, which had preceded and accompanied the hypertrophy of the phalanx, appeared again, and the swelling also returned.

Another affection, still more serious than any we have enumerated, also existed, namely a gibbous enlargement of the seventh, eighth, and ninth dorsal vertebræ, with paraplegia of the lower extremities of eighteen months' standing.

Despite of this deep-seated and premature affection of the bones, dentition had been exempt from any accident, and took place, as might be said, imperceptibly, although the infant sucked for eight months during the protrusion of the first teeth.

He walked by himself at eleven months; his intellect was precocious; in appearance he closely resembled his mother, æt. 24, who for a year was affected with a copious leucorrhea, and who had a scrofulous sister.

The treatment was composed of the internal use of the iodurettted mineral water, of collyria, and injection of the fistulous canals with the iodine solution, and three iodurettted baths weekly.

The father wrote to me at the end of a month, and to two other persons also, that his child, who had not walked for a year and a half, was now beginning to walk alone in their apartments.

Case IV.—I proceed to relate an example in which the mucous system was affected still more generally, and in a more remarkable manner, than in the preceding case, the bones at the same time being less deeply engaged.

In the month of March, 1828, I was consulted for a boy

five and a half years of age, who had an enlargement of the last phalanx of the right ring-finger, the affection partly extending to the second phalanx at one part, and in another to the fourth metacarpal bone. The soft parts were red, livid, soaked with pus, and perforated with three fistulous orifices.

This child was born a twin with a sister, who died at two months old. He came into the world with his head large and deformed, the nose deflexed to the left side; an accident from pressure, which quickly disappeared. The sternum, which at the time of birth formed a marked angle in the front, was now also projecting beyond the natural extent.

During the first year of his existence this child had a continual obstruction of his nostrils, by which his respiration was much impeded.

From the second to the fourth year he experienced several severe and dangerous diseases; they ordinarily commenced by a cold, followed by a diarrhœa, and the irritation alternately changed, during from three to four months, from the lungs to the digestive organs, and again from these to the lungs.

In the month of February, 1828, there commenced a swelling of the first phalanx of the ring-finger, after a fall on the right hand.

In the ensuing March a catarrhal fever like the former supervened, and once more endangered the little sufferer's existence: it lasted, as usual, the whole course of the spring, and still longer. At the commencement of this fever the hypertrophy of the finger disappeared. It showed itself a second time the following year at the same period. The catarrhal fever appeared also, but, contrary to its habit, it abated with sufficient rapidity, while the hypertrophy made such rapid progress, that in two months the parts became fistulous.

The young patient was sent to the country, whence he returned in April, 1828, without having derived any advantage from the most rational of the ordinary means employed assiduously for more than a year, and it was decided that amputation of the finger should be performed, when I proposed to have recourse to the iodine treatment.

The finger was dressed once daily with a cataplasm of linseed-meal with the hydriodate of potash. A drachm of this salt was added to two ounces of the cataplasm, and this served for three dressings.

In fifteen days the appearance of the parts was changed, and the improvement eventually proceeding the local medication was alone persevered in, and with such success that in the month of August the three fistulæ were healed, and the soft parts had recovered their healthy condition.

In February, 1829, the finger swelled anew. A second time the iodurettted cataplasms were applied, and in a fortnight the hypertrophy had disappeared.

In the following October the child returned from the country, having enjoyed better health all the summer. The very evening of his arrival his right eye was rather red, which was attributed to his having kept his head to the door of the vehicle the entire road from Provins to Paris.

In a few days the inflammation increased to a high degree. An application of leeches caused an erysipelas of the face, which lasted a fortnight, and during which the inflamed eye was covered with a bandage, the weakest light causing great pain.

Immediately after this erysipelas I purged the patient twice; but the ophthalmia not having diminished in severity, the iodine treatment was commenced. The ophthalmic eye was bathed five or six times daily in the iodine solution No. 1. Every morning the child drank a coffee-cup of the iodine mineral water No. 2, sweetened with coltsfoot syrop.

After eight days of this treatment the child had no longer a bandage on the eye, and the ophthalmia was cured in twenty days. The treatment was, however, continued for another month.

Case V.—I now arrive at a case, in which I may say, without dreading to desert that tone of moderation with which I have constantly related the numerous successes of iodine, that this peculiar treatment has worked a kind of resurrection in the patient.

In the month of last July I was consulted for a young lady, æt. 8, who presented the following symptoms :—Intense inflammation, both palpebral and ocular, of the left eye, hypertrophy, lividity of the eyelids, deep red injection of the conjunctiva, hypertrophy of the cornea, which was covered with spots, painful lacrymation, induced by the weakest contact of light, so that it was next to impossible to examine the eye.

The lips were indurated, hypertrophied, livid, covered with crusts and scales, readily bleeding, and painfully restrained in all their motions. Their circumference was covered with melitagra, forming crusts approaching to the same deep colour as the lips, which were thus affected by two diseases at once, each of which might exist independently of the other.

The skin was dry and hot, the pulse 130, emaciation and debility to the highest degree, invincible repugnance to motion, so that she could not be lifted from her bed, but only to be laid on a couch, whereon she lay motionless, her back to the windows, in order to avoid the least contact of the light with the left eye, which was covered with a bandage. Night and day, whenever a little sleep stole on her, the marasmoid fever redoubled its accession, and her body became bathed in sweat. For more than three months her appetite

had vanished so completely, that the most delicate aliments were refused, however affectionately presented.

The left lower extremity was shortened two inches and a half by a spontaneous luxation of the thigh, which was but feebly consolidated in the external iliac fossa; but in other respects this did not seem to be the central point of the several diseases which we mentioned, for neither fistulous openings, local pain, or any sign of suppuration, were present.

The treatment was composed of the internal use of iodine, and iodine lotions repeated frequently during the day, and iodurettted baths.

By the end of one month's treatment the young patient was able to get up daily; the appetite had already reappeared; nutrition took on the most happy activity; the limbs became covered with a healthy tegumentary envelope, beneath which a layer of well-formed adipose cellular tissue was felt to exist. The general health was entirely re-established.

The lips are now entirely free from melitagra, and there only remain slight induration and hypertrophy in the middle of the free edge of the upper lip. The commissures are clean and free in all their movements.

The left eye is now but very slightly inflamed, and sufficiently able to endure the impression of day-light, for the infant plays all day in the open air, with no other defence than a violet-coloured screen.

According to my experience before I used the iodurettted baths, I could not doubt but that in this case the prompt amelioration which took place was greatly attributable to their operation. We may presume this the more reasonably, as the child being pleased with the baths after she increased in strength, I gave her at first three, then four a week, and eventually I brought them to two every three days, during October and November.

I might multiply still further the histories of particular cases I have witnessed ; but those I have just related appear to me sufficient to engage practititioners to adopt this new mode of treating scrofulous diseases.

ON THE ADMINISTRATION OF BATHS CONTAINING IODINE ACCORDING TO VARIOUS AGES.

After having established four graduated doses of the iodu-retted solution for the baths for adults, which can nearly satisfy all peculiarities of sex and temperament, it was necessary to divide each of these degrees for baths for infants.

I at first made this division by one half; but this dose was too strong, and I consequently adopted for children one-third of that for adults.

I give added a table, where it will be seen that I graduated the solution according to the age of the patient, with an indication of the quantity of water with which each formula should be diluted.—(*See the concluding section, Part III.*)

This graduation once admitted, only these exceptions will remain to be met, which particular cases or peculiarities may require, and of these the diagnosis belongs to the individual practitioner.

It will be remarked that this table offers a rather stronger quantity of iodine for children than for adults, or, in other terms, that the ingredient does not diminish in rigorous proportion to the water of the bath. I can, nevertheless, assure the practitioner that children support this slight increase with perfect ease.

And this fact may corroborate, it seems to me, the opinion we have before advanced, namely,—that in the baths the iodine acts not only by its quantity relatively to the vehicle, but also by its absolute quantity.

Although this table leaves room for much improvement, I still believe that it will serve to direct the administration of iodurettted baths to persons of all ages; and I feel authorised, by my personal experience, to announce that these baths, prepared according to the formulæ I publish, can be productive of no danger, but may be of great assistance, in the treatment of scrofulous diseases especially, and in others of analogous character.

It will be of these baths as of sulphureous baths, which the good practitioner employs not exclusively in cutaneous diseases, but also derives advantage from them in some abdominal affections, in certain states of gout, rheumatism, &c. We may even speak of them as of all the active agents of the materia medica, in each of which the experienced physician knows how to find the remedy of several diseases, according to the dose, the manner, and the time of its application.

PART III.

ON THE TREATMENT OF SCROFULOUS DISEASES BY IODINE.

Paris, May 1831.

ADVERTISEMENT.

Since the publication of my first memoir on the employment of iodine in scrofulous diseases, I have persevered in my exertions to ascertain the precise degree of efficacy of this valuable medicine in the treatment of numerous and very interesting cases.

The results of these investigations were not only similar to those already published, but I have met with such complete success, in the Hôpital St. Louis, in the most difficult and aggravated cases, that I felt myself bound not to attempt to narrate them on my own authority alone. I consequently had the honour to write to the Academy of Sciences, to request that body to submit my experiments on iodine to the examination of a committee of its members.

MM. Dumeril and Magendie having been appointed for that purpose, have accordingly visited the Hôpital St. Louis,

It will be seen, from the report of these distinguished individuals, that many of the successful results I obtained were of so unexpected a character, that they required the most scrupulous authentication and inquiry before they were laid before the profession.

ACADEMIE ROYALE DES SCIENCES.

MM. MAGENDIE AND DUMERIL'S SECOND REPORT ON THE TREATMENT OF SCROFULA BY IODINE AT THE HOPITAL ST. LOUIS.

By the solicitation of M. Lugol, the Academy has appointed a commission to visit the Hôpital St. Louis, and there investigate the alleged advantages produced by iodine in the cure of the most serious scrofulous diseases. M. Dumeril and I having been entrusted with this honourable office, we proceed to lay before you the result of our inquiries.

The Academy is already acquainted, from our previous report on this subject, with the success of M. Lugol's practice; a success so remarkable and valuable, that a disease of the utmost prevalence, especially among the poor, and formerly of such protracted and difficult treatment, that it is excluded from our hospitals by still-existing regulations, has now become curable in a limited period, and by means of trifling expense; and thus the numerous paupers afflicted with it, now have a right to be admitted into the hospitals, and treated as ordinary cases.

The new facts which on the present occasion your committee has verified, are such as to remove every doubt on

this subject. Not only have we witnessed the cure of scrofula in the first and second degree, but we have also seen the successful treatment of the disease in its most aggravated forms.

Deep-seated alterations of the glands and various other organs, serious lesions of the bones and their principal articulations, accompanied by those general symptoms which forebode a speedy death, have been perfectly cured, in great numbers of cases, in the space of a few months, leaving the patients in the best possible state, and free from every vestige of the malady except the ineffaceable scars it had originally effected. Moreover, these results are rendered still more valuable by the fact that the majority of cases subjected to M. Lugol's practice were, previously, in a desperate state, and only admitted into his wards as deplorable examples of the ravages of an irremediable disease. Among the unfortunate persons thus afflicted are frequently seen some whose mutilations are truly frightful. Before the discovery of iodine, they were all devoted to inevitable destruction, but since the introduction of that remedy and of bromine into therapeutics, one of your committee has had the happy satisfaction of restoring to life and comfortable existence many of those cases hitherto deemed of an incurable kind. It may not be superfluous to add that these cures have been as rapid as unexpected.

We shall not here enter upon an analysis of the individual facts submitted to our examination and authentication by M. Lugol. We have added some to this report, but they are not suited to be read to this assembly, for pictures so melancholy, without promoting the interests of science, could not fail to be disagreeable — one remark is nevertheless essential. In cases of tumours of the articulations, with caries or other alterations of the bony tissue, instead of recommending absolute rest, according to the general prac-

tice of surgery, M. Lugol includes regular exercise in his remedial measures. The cases of this kind which he has shown us leave no doubt of the advantage to be obtained in following this departure from the general rule.

We have already said, in our preceding report, that M. Lugol does not pretend to the discovery of the utility of iodine in scrofulous diseases; but from the great number of cures he has obtained—from the zeal and perseverance with which he pursues his researches; from the light he has thrown on the varied effects of the different preparations of iodine, internally and externally administered, it is manifest that he has contributed largely to the advance of medical science. And as, moreover, he has the wisdom to shun all idle and profitless speculations, the uselessness of which constitutes but their least inconvenience, we have the honour to propose that M. Lugol's researches receive your approbation, and that he be requested to continue to prosecute inquiries fraught with so much value to mankind.

DUMERIL.

MAGENDIE, Reporter.

The Academy adopts the conclusions of this Report.

(Signed) CUVIER,

Perpetual Secretary, &c. &c.

MEDICAL SOCIETY

INTRODUCTION.

Professor Magendie having read to the Academy of Sciences a report on my clinical researches, I proceed to relate several examples of the cures on which are founded the flattering conclusions with which that eminent practitioner summed up his observations. I shall relate them in the order in which they were submitted to the investigation of the Committee, and the same which I followed in my first Memoir. The first and third will thus make one treatise in two parts, on the same subject. From the comparison of both, the reader may more readily estimate the progress made during two years towards the perfection of this method of treatment.

I shall then consider the effects of iodine,

1. In tubercular scrofula.
2. In the scrofula of mucous membranes, especially ophthalmia.
3. In cutaneous scrofula.
4. In the scrofula of the cellular tissue; and
5. In scrofulous diseases of the bones.

It is not necessary to hesitate in adopting this arrangement on account of the imperfections such a classification may exhibit. We are not here engaged in a systematic discussion of the subject; on this point I am not yet sufficiently prepared, and a long time will perhaps elapse before I venture on the task. *The classification of diseases should not be attempted until our knowledge of them has been rendered complete,* and until no more of their peculiarities remains to be learned. Moreover, the family of scrofulous maladies

presents so wide an horizon, that probably I may never attain its limits.

In the common practice of medicine but a very imperfect notion is conceived of the number and extent of scrofulous diseases, or of the different degrees of intensity and duration they may exhibit. This defect perhaps originates in the want of courses of lectures on special objects in our scholastic systems of instruction. The number of infirmities thus induced is indeed immense, and their very nomenclature so extensive, that I must remit its consideration to another occasion.

But however wide the varieties observed in these diseases, they all readily refer to one general family, and the similitude is so obvious that a scrofulous ophthalmia and a cutaneous scrofula are quickly known to be of the same nature and to require the same treatment.

Analogous facts are not wanting in the histories of other diseases. If we examine the tribe of pernicious intermittent fevers, whether cephalic, pneumonic, cardialgic, dysenteric, or rheumatic, we soon ascertain the general identity of the affection, which discovers itself in various forms according to the situation it effects. The varieties of scrofula originate in this manner; besides, it is not uncommon to find many or all of its forms, co-existing or occurring in succession in the same individual. This general mode of viewing the disease, taken together with the hereditary history of the patients, is of much use in the correct discrimination and mode of treatment of the maladies supposed to be of a scrofulous nature.

The progress made in the treatment of scrofula in the interval between the publication of my first and third essays will be best seen by contrasting the effects of the treatment of scrofulous caries. At first I could only adduce one successful case, and even that incomplete at the time; the patient,

however, has since then been entirely cured, and for the last two years has been engaged on the most laborious employments of the hospital. The patient who was cured by iodine of caries of the inferior maxillary bone, and of white swelling of the right knee, with five fistulous ulcers on the external surface of this joint, into one of which six inches of a probe could be introduced, may now be seen carrying heavy loads and in the entire possession of his health.

In the third essay the cases of similar success are much more numerous. It is however to be lamented that scrofulous caries still continues comparatively intractable, though even in the worst cases, the use of iodine arrests the progress and alleviates the symptoms of the disease. It will also be seen, in the last division of the work, that some increase is proposed in the number of the preparations of the remedy, in order to meet a few peculiar forms of the disease. The chemical history of the various compounds of iodine is, however, so exceedingly simple, that the therapeutic application of the several preparations to the appropriate cases cannot be attended with the slightest difficulty.

CASES AND OBSERVATIONS, &c.

§ I.—IODINE IN SCROFULOUS TUBERCLES.

Ulcerated Tubercles of the Neck at each side—Deep Alterations of the Skin—Ophthalmia of the right Eye—Copious Epiphora—Seven Months' Iodine Treatment—Cure.

Case I.—Philippe Jean Duport, shoemaker, aged 19, was admitted on the 6th May, 1829. At each side of the neck, from the upper extremity of the sterno-cleido-mastoid muscle to the back of the chin, there existed a great number

of ulcerated tubercles, and the cutaneous tissue was also much diseased. The tubercles first appeared when he was 15 years old, in the spring. Every year since, at the same season, additional tubercles appeared and the old ones increased in size. Ulceration supervened about three months after their first appearance. There was also a fluctuating tumour on the top of the sternum, and another, of hard consistence and about half the size of a nut, before the right massiter muscle. Both these were but of two months' duration. The ulcers all looked very badly, and were covered with thick grey crusts, which were occasionally separated by the discharge from the subjacent ulcers.

I may here remark, that scrofulous pus does not give rise to incrustations, so that those formed in this instance depended on the pus proceeding from the surrounding skin,* and they were detached almost as soon as formed, by the abundance of the tubercular discharge. The separation of the crusts in this case was accelerated by the slightest motion of the neck, and, by giving rise to trifling local hæmorrhages, increased the hideous aspect of the patient on his first admission.

At seven years of age he had a fall, six months after which an immense abscess formed in the calf of the left leg, which would have been amputated at the Hôpital des Enfans, had not M. Jadelot fortunately opposed the operation. For this abscess he was six months confined to bed, and six months more during convalescence unable to walk. While the cellular, and perhaps the osseous, tissue was thus deeply affected, ophthalmia attacked both eyes, and continued for five or six months. At 18, during the active growth of the tubercles, ophthalmia of the left eye again occurred, which lasted four months and returned again two months before his admission. For many years he was subject to copious epiphora at both sides. The cause of the disease could not

* In a state of *common* inflammation.—Translator.

be traced to any hereditary predisposition : his parents were young and healthy, and his brothers free from any scrofulous affection. He followed his trade in Paris for a year in the Rue de Porton au Marais, in a back room on the ground floor, where the sun's rays never entered. He also slept in this room. According to the custom of authors this would have been deemed a sufficient cause of the disease, but a more rigorous analysis of the case shows that the locality only acted as an occasional cause in its development of the predisposition to scrofula already inherent in this individual. The chronic abscess and the ophthalmia occurred while the patient was but a child, and lived with his parents in sufficiently comfortable circumstances, and not exposed to moist air. Besides, after the first eruption of the cervical tumours the patient left Paris and returned to his native place, where, though his circumstances and abode were favourable to his recovery, the disease nevertheless proceeded with scarcely diminished violence. Had moisture been the cause, when the patient was removed from its operation, the effects might reasonably have been expected to disappear.

1st August, 1829.—After twenty-six days' treatment with the ointment containing the proto-ioduret of mercury, and with the ioduretted mineral water, the tubercular ulcers were cicatrized, and tubercular matter was felt no longer in any situation, excepting the two swellings which last appeared, and over which the cicatrices were less firm and healthy than in the other places. During the first month of the treatment the suppuration was very profuse ; and for a period of nearly three months the local action of the iodine was most acute, causing severe pricking pains for two or three hours morning and evening.

16th October.—For more than two months the patient was only dressed once daily. No local suppuration or tubercular incrustations ; the cicatrices of the two recent ulcers

not yet sufficiently healthy. The iodine had by this time lost nearly all its local power.

During more than four months the iodurettted mineral water produced salivation ;* and from time to time it seemed to occasion one or two additional alvine evacuations daily. Slight diuretic action was also manifested. The appetite, ever good, was not impaired by the remedy. On the 28th February he was dismissed cured. He soon afterwards returned to the hospital in the capacity of a sick servant, and, during the events of July, applied himself with such zeal to the assistance of the wounded that he fell ill of fever and erysipelas of the face and scalp. Under the influence of the ordinary remedies he recovered in three weeks ; and though his convalescence was protracted, no relapse of the scrofula took place, an event which was much apprehended.

In three months he obtained a more healthful and easy situation, and quitted the hospital in perfect health.

Extensive Tubercular Ulceration, occupying the right side of the Neck and Face—Scrofulous Swelling at the right side of the Neck—Three Months' Treatment—Cure.

Case II.—Julien Pollet, æt. 19, tailor. His father died at 27 years old, of an acute disease. A brother died soon after his birth ; and a sister died of the small-pox at eight years old. At three he himself suffered a violent attack of confluent small-pox. At six he had an illness marked with some curious and anomalous symptoms : sometimes he experienced a kind of instantaneous paralysis of his limbs, and sometimes he lost his sensibility. Each paroxysm was of very transitory duration. The disposition to the fits lasted six months. The details I have received concerning this disease are, however, too vague to enable me to describe it at greater length.

* Quere, the proto-ioduret of mercury ?—Translator.

At 17 years of age (January, 1828) the scrofula first showed itself in the form of tubercles, first of the right side of the neck, and two months after at the left; at which side the tumour was of a conoid form, with its base anterior. At the right side the tubercles were differently situated. Early in July several of these tubercles became ulcerated, at intervals of several days; and gave rise to five ulcers, from the confluence of which resulted an immense sore, occupying the right side of the face. Within this sore were several insulated spots and red thin skin, infiltrated with pus, the remnants of undestroyed skin. One of the original ulcers had commenced on the cheek before the ear, and destroyed the internal half of its lobe, which was separated nearly an inch from the lateral parts of the face. The helix, tragus and antitragus, participated in the disease; and altogether the sores, though apparently cutaneous, were, on more minute examination, found to be of the tubercular kind.

27th July, 1829.—Dressing with the ointment of the proto-ioduret of mercury; ioduretted mineral water, and sulphuretted baths.

In a fortnight cicatrization and resolution of the tubercles were rapidly proceeding; and in a month the entire sore was nearly cicatrized, leaving only an ulcer the size of a half-franc piece on the lobe of the ear. This ulcer was seated on a tubercle, and suppurated very abundantly. From this period convalescence gradually proceeded till the 1st of November, when he left the hospital perfectly well.

Tubercular Tumour on the Right Groin, Ulceration of a Months' Standing—Two Months' Treatment with Iodine—Cure.

Case III.—I am principally induced to relate this case of inguinal tumour, unaccompanied by any other scrofulous

affection, from the infrequency with which this disease is seen concentrated in a single situation.

Narcisse Decalogne, æt. 22, toy-maker, was admitted on the 25th August, 1830, for a tubercular tumour of the right groin. The swelling was formed by several tubercles, as large as nuts, which had coalesced into a tumour as large as the clenched hand. Before admission he had been subjected to two modes of practice, to the administration of mercury, and to the antiphlogistic system. On the 22d July, the tumour was punctured at the Hotel Dieu, after which ulceration ensued. On the 22d August, frictions and dressings of iodine, with the mineral water, were commenced; and during September and October, I touched the ulcer several times with the rubefacient and caustic iodine. He was dismissed cured on the 24th October, 1830.

With reference to the probable causes of this disease, I may observe, that this patient's mother was considerably older than her husband; and that Decalogne's two brothers and one sister died in infancy of catarrh.

Tubercular, Cellular, and Cutaneous Scrofula—Habitual Cough from Childhood, aggravated at intervals by Ophthalmia—Retardation of Growth till the Age of 17—*Eight Months' Treatment, during which Hæmoptysis supervened—Cure, and great Amelioration of the general Health.*

Case IV.—In the first and second cases, we have seen tubercles coinciding with an affection of the cutaneous tissue of a peculiar kind, and not that necessarily occasioned by the suppuration of the tubercles. The present case offers another example of this complication, existing in a somewhat minor degree, but also unhappily accompanied by tubercles of the lungs.

The circumjacent cellular tissue was also in a state of inflammation.

Joseph Adolphe Quesnot, æt. 20, barber; father æt. 39, has been liable to cough since infancy; mother, æt. 45, enjoys good health; a sister died at fifteen months. In early childhood Joseph was constantly afflicted with catarrh of all the mucous surfaces, especially of the lungs. At 10, chilblains occurred simultaneously on the hands and feet, and caused deep ulcerations, which lasted the entire winter. At 12 years the patient began to experience an habitual cough, which he attributed to the dust of cotton, to the inhalation of which his employment exposed him. At 14 he had ophthalmia of both eyes, with erysipelas of the face; and he was blind for a month. At 16 he gave up the cotton work, and came to Paris, to a barber. He was then diminutive of stature, and looked younger than his actual state. Soon after this he had a second ophthalmia, accompanied with general illness and a cough; which from this time lasted, with little intermission, for several years.

At 19 the ophthalmia recurred with great violence at the beginning of winter, and continued unabated till the middle of April. The cough, ever exasperated by the ophthalmia, was now associated with night-sweats and emaciation. The following June a cellulo-tubercular tumour occurred in the neck, at the right side, and several tubercles also appeared in the left. In the left axilla, a cellulo-tubercular swelling also took place, and attained the size of both hands.

27th June, 1830, he was admitted into the Hotel Dieu; and the cellular abscess of the right side of the neck punctured, giving issue to a great quantity of pus of the most fœtid odour. An incision, practised at the left side, only gave issue to a little blood; and a still deeper puncture was attended with no further evacuation. Eight days after this he was attacked with erysipelas of the face; and on the

tenth day of this affection he appeared at the point of death, so that in the course of the day, having to all appearance breathed his last, the coverlet was drawn over him, and the curtains shut up, in the belief that he was actually dead.

On the 28th July he left the Hotel Dieu, and on the 4th of August was admitted into the Hôpital St. Louis, when he presented the following symptoms : He was pale, emaciated, and weak, having two ulcerated tumours, the skin in the vicinity of which was of the worst appearance, red, livid, and impregnated with pus. The ulcers secreted pus most copiously, so that two dressings per day were scarcely sufficient. A third tumour existed under the left axilla, as large as both hands, and its anterior half resting on the chest. The corresponding limb was stiff and motionless, and excessively pained on being touched. On the third day after his admission this tumour burst, and at least a pint of tubercular pus was discharged. Ioduretted dressings, mineral water, and sulphuretted hydrogen baths.

In the third month of this treatment, 8th October, 1830, a profuse hæmoptysis supervened and lasted two days. The left side of the neck was not at all improved, but the right side and the axillary tumour were evidently almost cured.

It may readily be conceived how alarming this hæmoptysis was in a young man liable to cough since infancy ; nevertheless, after having purged him twice with manna, at the interval of a day I resumed the iodine treatment in the belief that some good effects might thus be produced, while debilitating measures could only accelerate the end of the unhappy patient.

I trust it is unnecessary for me to add, that wherever I find a set of symptoms increasing under the influence of iodine, I do not neglect to modify the internal use of the

remedy, and suspend it if necessary altogether, and, as in this case, continue only the local treatment, directing my attention to the hæmoptysis in the appropriate manner. In this instance, a few days after the expectoration of blood had ceased, I resumed the ioduretted mineral water: the caustic iodine was also used locally. Before the end of September, the left axilla and the right side of the neck were cicatrised. In the left side the ulcers remained open for two months longer.

The local action of the iodine was very painful in this case, and the ioduretted water proved diuretic. The appetite continued good during the entire course of the treatment; once or twice monthly the patient usually experienced sensations of smarting, like those which preceded the hæmoptysis by which he was attacked in October. In other respects his health is much improved. The iodine treatment was suspended on the 15th April. The patient, however, was to be retained in the hospital for some weeks, in order to ascertain whether any recurrence of the scrofulous tumours should take place, or whether he should experience any further improvement in the condition of the cicatrices, and in the state of his general health.

§ II.—IODINE IN SCROFULOUS OPHTHALMIA AND CORYZA.

Double Ophthalmia, with Blindness of five months' standing —Scrofulous Caries in the first stage—Cure in five weeks.

Case V.—Francis Delange, æt. 19, lemonade-maker, was admitted into the Hôpital St. Louis on the 8th October, for ophthalmia, engaging both eyes, and of the most violent description; he was quite blind, but solely from mechanical causes, from the thickening of the conjunctiva and cornea,

and especially of the eyelids, which were much hypertrophied, and could not be opened. The slightest examination was almost impossible, from the excessive pain and profuse lacrymation occasioned by the light. The inflammatory affection of the eyes prolonged itself into the frontal sinuses and nasal fossæ, producing intense lancinating headach, with violent coryza, particularly of the right nostril, with incrustations on the pituitary membrane. The present was the third attack of ophthalmia; the first happened when he was 17 years of age, set in in the commencement of winter, and lasted but a few weeks. The second supervened at 19, in March, and lasted eight months. The third, which I have just described, commenced in May, and was consequently of more than five months' duration. The left eye was always much more severely affected than the right. For five months he had a seton in his neck, and two blisters had been applied to his arms at the onset of the attack, opiate applications of various kinds had been used to the eyes, and ninety leeches had been applied at three intervals. Lastly, he was bled from the arm, since which evacuation he has been completely blind.

Besides the appearance of this ophthalmia, its obstinate nature, and the periodicity observed in its annual returns for three years, the patient still retained palpable traces of previous disease, of such a nature as was calculated to elucidate the character of the present affection. At two years of age he had caries of the third phalanx of the left ring-finger, and of the lower third of the humerus of the same side. This caries terminated in eighteen months by the loss of the greatest portion of the phalanx, and by the separation of two scales of the arm-bone. Since that time till the commencement of the present illness he enjoyed extreme good health, and even remarkable muscular power. Five brothers, older than himself, were similarly vigorous.

8th October, 1830.—Suppression of the seton, and blisters; to have local baths, ioduretted injections behind the eyelids and by the inner angle of the eyes, to be repeated frequently every day. To take the ioduretted mineral water ($\frac{3}{4}$ grain of iodine dissolved in a pint of water).

After six days of this treatment the patient was evidently convalescent, and he saw clearly with both eyes.

24th October.—Right eye cured. The upper lid of the left eye was still red, indurated, and consequently nearly immoveable. On the cornea were seen two spots, each of about two lines in diameter.

10th November.—Dismissed cured. The left eye seemingly a little smaller than the right, on account of slight remaining hypertrophy of the upper lid. Though he saw objects distinctly with this eye, his power of vision with it was weaker than at the other side, from a deep-seated corneal stain. The right eye was perfectly well. The headach and coryza disappeared with the ophthalmia. I recommended the patient to continue the use of the ioduretted solution for six weeks after he left the hospital.

Purulent Scrofulous Ophthalmia in the most violent form and intense Coryza, mitigated in a few days by active local treatment with Iodine, and finally cured by the Internal and Local Method.

Case VI.—Antoine Cretenet, æt. 16, of diminutive stature, entered the Hôpital St. Louis, on the 4th of May, 1830, for a double purulent ophthalmia and scrofulous coryza of the worst kind. He kept his head bent down and resting on the chest, and his eyes were covered with a triple bandage, in order to avoid the least contact of the light. On examination we found the eyes bathed in pus, and enlarged to an enor-

mous size by the hypertrophy of their soft parts. The eyelids and their circumference were swollen, of an erysipelatous redness of the worst appearance; between their free edges there existed a large red, granulated chord, formed by the conjunctiva, which had already acquired a thickness of two or three lines.

The swelling of the soft parts, and the exquisite pain occasioned by the contact of the light, although the eyelids were closed, did not allow us to attempt to open them in order to examine the cornea. We, however, regretted this the less as we could only learn by the inspection the *degree* of violence of the disease, by which information the nature of the treatment could not be modified.

The nose participated also in the condition of the eyes, and was almost buried in the swelling of the surrounding soft parts. The nasal fossæ were choked with crusts, the alæ nasi hypertrophied, so that the patient was obliged to breathe exclusively through his mouth. Both these affections were of about thirteen months' duration, and their actual state had lasted for eight days. He had previously been affected with ophthalmia several times; had also laboured under obstinate chilblains, and had had favous pustules on the scalp. His father, a man of weakly constitution, had long suffered from ulcerated legs, and was some years dead. His mother died at 40, having ever been of a delicate and sickly habit. Of two brothers and two sisters, one of each died young, the others were in a state of wretched health, subject to chilblains, and constant swellings and incrustations of the nose and pituitary membrane.

The case appearing very urgent on admission, the acting-surgeon applied a blister to the neck, with mustard-baths to the feet, and a laxative injection. It is, however, notorious that this derivative method has failed to cure purulent ophthalmia in the practice of the most renowned physicians.

It being also well known that this ophthalmia not unfrequently causes the destruction of the eyes in a few days, and from my conviction that the disease was here of a scrofulous nature, I did not hesitate to have immediate recourse to energetic local treatment with iodine. Whenever scrofula exists, iodine must be called in to our assistance.

5th May.—Local baths, iodurettted solution to be injected beneath the eyelids and into the nostrils with a small syringe. As the danger of losing the eyes was imminent, I stationed another patient near Cretenet, to keep the local baths and injections constantly renewed.

7th May.—Pain and suppuration diminished, and the soft parts less impregnated with pus. By slightly opening the eyelids we found the cornea red and swollen.

10th May.—Swelling of the soft parts much decreased, the patient can open his eyelids and support the daylight. The secretion less abundant, and not so yellow. He remained several hours without a bandage.

16th May.—The swelling disappeared, and disease reduced to the condition of mild ophthalmia.

27th May.—The patient attended my clinical lectures without a bandage, and surprised every one who had seen him three weeks before in the state I have already described.

Early in June the ophthalmic symptoms re-appeared with much violence, a circumstance which I was at first inclined to attribute to the neglect of blisters and other secondary measures, but which a more rigid examination showed me to have arisen from the patient's own neglect of the local remedies prescribed in his treatment. These were therefore resumed with renewed perseverance, and in a few days the relapse was nearly terminated. After the symptoms had abated in violence, the patient commenced the employment of the iodurettted mineral water, and in this, associated with sulphureous baths, he continued for four months.

The preceding cases are sufficient to show the efficacy of the iodine treatment in this species of scrofulous disease no matter how severe in its form. A third example occurs in the *Lancette Francaise*, third volume, No. 68, in a young patient, æt. 15, who, since three years of age, laboured under ophthalmia of both eyes, coryza, general impetigo, and cervical tubercles, and in whom the iodine exerted equally prompt and durable effects.

Besides these cases, I possess many others of ophthalmia in its most intense form, in hereditary instances, and in which the ophthalmic disease and the general health have received equal improvement from the local application and internal administration of iodine.

§ III.—SCROFULA OF THE CUTANEOUS TISSUE.

1.—*Ulcerated Cutaneous Scrofula.*

CASE VII.—AUGUSTUS JARRY, ætat. 24, of small and stunted stature, as if of a person but ten years old, was admitted into the Hôpital St. Louis, on the 5th of January, 1830. His state of suffering and marasmus completely baffles description. His arms and legs were ulcerated, shrunk, and in certain situations almost devoid of muscular coverings. The left arm especially was reduced to the humerus, and a thin layer of muscular fibres. The deltoid muscle was laid bare, except superiorly and posteriorly, where some traces of cutaneous tissue remained. The shoulder of the same side was ulcerated longitudinally to the extent of six inches and a half from the external extremity of the clavicle to the inferior spine of the scapula. The right arm was a little less ulcerated, some traces of skin still remaining, forming insulated spots in the midst of ulcers, which, isolated at first, subsequently invaded the entire circumference of the upper two-thirds of the arm.

Both legs, deprived of integuments, presented the same aspect as the arms. From these ulcers, for twelve years, more than a pint of pus was daily discharged. This secretion increased towards the end of winter, and continued more abundant during the spring and the greater part of the summer. On the trunk, the thighs, and the fore-arms, the skin was dry and lichenous, and the cutaneous transpiration arrested. The emaciation, ever great, was, for the last eighteen months, increased by profuse ill-conditioned diarrhœa, a discharge perhaps supplementary to the suppressed perspiration. Usually the number of stools amounted to twenty daily, and were generally bloody and accompanied with cutting pains.

The disease just described was of twelve years' standing, and had been preceded by a tubercular swelling in the left submaxillary region. Both before and since the appearance of this tumour he was subject to obstinate chilblains, to sores of the nose, and especially to aphthæ, which, since the age of two years, returned annually at the end of winter, and during the spring and summer effected much injury to the mouth and pharynx.

The history of the causes of his illness contributed to render the prognosis more distressing. His paternal grandfather died of ulcerated legs. His father was for several years confined to bed by the same infirmity, and he was, moreover, tainted with syphilis when the present patient was begotten. Of seven brothers and two sisters, eight died between three and four years old, one only survived to seven, and was then purblind with ophthalmia. All were, like the present patient, afflicted with chilblains. His only remaining sister was manifestly scrofulous in a high degree. Many of his collateral relatives had either fallen victims to, or actually laboured under, various scrofulous affections.

A cure in this case was scarcely anticipated, notwithstand-

ing the encouraging examples of the omnipotence of this remedy which we had already collected. His treatment was commenced on the 6th of January, 1830. After local bathing with an ioduretted solution, the ulcers were dressed with pledgets of lint strongly covered with the ointment of the proto-ioduret of mercury. The condition of the large intestines did not yet permit the internal administration of iodine.

In a few days the appearance of the ulcers was improved. The right leg was cured in three weeks, and the left arm at the end of February. The cure even proceeded too rapidly, for his respiration became impeded, his head heavy, and spontaneous vomiting and nausea occasionally supervened during the space of a fortnight. A Burgundy pitch plaster was applied to the chest, manna was twice administered, and a pitch plaster was also placed on the back. The plasters were, however, discontinued in eight days, when the sulphureous baths were opened in the hospital, and a more effectual means thus afforded of recalling the cutaneous perspiration, the only indication the plasters seemed capable of fulfilling.

April 11th. During the three preceding months, I now felt that I had perhaps conceived an erroneous notion of the nature of the diarrhœa. I had regarded it in some degree as a supplementary function to the impeded cutaneous excretion, but on more mature deliberation, and on recollecting the aphthous state of the mouth and fauces, I was rather inclined to refer it to a similar condition of the intestinal canal. As I would not hesitate to touch aphthæ with ioduretted solutions even of rubefacient or caustic power, I therefore consider that I might safely and effectually prescribe the internal use of the ioduretted mineral water.* Half a grain,

* In like manner the infantile catarrh in scrofulous subjects by no means contra-indicates the use of iodine. I have acquired the most fixed conviction on this point from long experience with hospital and private cases.

therefore, was daily taken, and the diarrhœa, already much amended by the sulphureous baths, was entirely cured at the end of a month.

From the end of February the dressings were with the ointment of simple iodine alone, it being apprehended that the mercurial action might aggravate the aphthous state of the intestinal tube. The local action of the various ointments was worthy of notice,—that of the proto-ioduret of mercury having caused great excitement, while the simple iodine ointment was scarcely felt. The reverse of both these effects is usually witnessed. The ioduretted mineral water proved highly diuretic. The internal dose of the iodine for the last three months, was three-fourths of a grain daily.

I should add, that after the 15th March I touched the ulcers with the rubefacient solution, and even with the caustic iodine, in order to hasten the cure of several ulcerated points on the right arm, and of an ulcer an inch and a half in circumference, which had long existed on the middle of the right leg. I wished also to improve the appearance of the cicatrices, to render them less depressed, red, and deformed. All these indications were most satisfactorily fulfilled, and the ulcers healed so perfectly, that but a very faint idea could be formed of their former magnitude.

July 25th, 1830. The cure was complete after six months and twenty days of the iodine treatment. He was retained for some time in the hospital, in order to watch the cicatrices which at first adhered in some places to the bones, but accordingly as the fat became increased in quantity, the whole cutaneous system again returned to its normal condition, and his fulness every day increased. The increase in size, weight, and plumpness, from a state of emaciation, under the use of iodine, is too important to be passed by without notice.

Case VIII.—Eloi Macaire, æt. 22, born of unknown parents, admitted April 19, 1830. Having been first placed in one of the surgical wards, he was transferred to me by my colleague Dr. Cloquet, who, regarding him as incurable by the ordinary modes of therapeutics, wished to afford me a new opportunity of testing the powers of iodine.

The patient was literally covered with old scars and scrofulous ulcers still in an open state. Both sides of the face and neck were invaded by wide, deep, soft ulcers, with soft gelatinised edges, extending from the ears to the chin and the base of the sternum. The surface of this vast ulceration presented irregularities, in which were clearly perceptible the three principal sores of which it was composed. The base of these ulcers was tubercular, and surrounded with indurated cellular tissue, rendering the movements of the lower jaw difficult and painful. The head and cervical vertebræ in fact seemed but to form one piece. The separation of the jaws was so limited that a two-sous piece could not be introduced between the teeth. Mastication was consequently impossible, and the patient could only swallow liquid aliments, and even these with much difficulty and pain.

Behind the middle region of the right sterno-mastoid muscle there was an oval ulcer two inches long, with a tubercular base. Above the humeral extremity of the right clavicle was a tumour larger than the closed hand, communicating a sense of fluctuation, passing under the clavicle and projecting on the chest. The unity of the abscess was proved readily by pressure above and below the clavicle.

Beneath this cyst a bag-shaped ulcer three inches long extended obliquely from the left towards the xyphoid cartilage. This was the primary ulcer which had existed since the age of three years, and had never been healed. The long duration and aspect of this sore, and especially its

resistance to the numerous remedies tried for its relief, led to the belief that it was kept up by the caries of the ribs and sternum, and had induced several surgeons to propose the trephining of these bones.

To conclude this catalogue of ulcerations, the right axilla was occupied by a tubercular tumour presenting two ovoid ulcers placed one above the other, the inferior advancing rather to the front of the chest. These two ulcers had existed since the patient was nine years old. Those of the face and neck were but of four months' duration, and the indolent clavicular abscess had commenced but two months before the patient's admission into the Hôpital St. Louis. The symptoms underwent an annual exacerbation in June, and the suppuration was then much increased.

The abdominal parietes, the lower part of the left side of the chest, the neck and limbs, presented numerous scars of the worst character.

Macaire had passed almost his whole life in different hospitals and asylums. Having exhausted all the resources of the first establishment he was received into, he passed five months in the Civil Hospital of Lisle, without the slightest advantage. The organic lesions, already so numerous and so severe, and which had produced great debility and emaciation, were but too effectually assisted by the deep moral dejection of this unhappy young man, who since his birth had only experienced the most perfect state of disease, pain, misery, and destitution.

May 12, 1830. Iodureted treatment. The sub-clavicular abscess was punctured, and there escaped a quantity of pus, or rather of softened tubercular matter, readily recognisable by its purulent and cheesy aspect. A solution of iodine was injected into the cyst and allowed to remain therein some minutes. The ulcers were dressed with charpie, strongly

charged with the proto-ioduret of mercury. He was placed also on the use of the ioduretted mineral water, and he was ordered three sulphureous baths weekly.

26. Parietes of the abscess adherent; generally improved.

June 15. Ulcers of the face and neck cicatrised. The only remaining sore was that corresponding to the middle region of the sterno-mastoid muscle. The thoracic and axillary ulcers were replaced by well-conditioned scars. For three weeks he had recovered the free movements of his head and jaws, of which latter circumstance he availed himself with much pleasure.

July 10. Respiration embarrassed, cough, diminished appetite, sterno-mastoid ulcer suppurates pretty well. I had retarded the cure of this ulcer for some time, regarding it as a natural and beneficial issue. The analogy of these symptoms to those witnessed in the case of Jarry, decided me to use the same treatment, and it was attended with equal success. In this case also the touching of the ulcers, in the second fortnight of their treatment, with the concentrated solution of iodine, was attended with such striking local improvement, that it was perfectly visible from day to day, so that I was obliged to restrain it very soon, lest the sudden suppression of the ulcers should give rise to any dangerous effects.

25. Appetite good, he sleeps well, and feels happy. His only remaining ulcer was dressed once daily with the ointment of the proto-ioduret of mercury; his daily dose of iodine in solution was three-quarters of a grain. The cicatrices were touched twice a week with the rubefacient solution, or caustic iodine, in order to diminish their redness, smoothness, and prominence.

October 25. In every respect as well as possible. The

cicatrices were excellent, and no longer could convey any notion of the disease from which they resulted. Up to this time the local and internal treatment had been persisted in. The last ulcer was now healed, or very nearly so, its re-opening being encouraged from time to time for reasons already specified.

Dec. 31. Local treatment neglected for two months. The mineral water was continued in order to confirm the cure. No relapse has since taken place, and every thing seems to promise permanent good health.

2.—*Esthiomenic Cutaneous Scrofula of the Nose, Upper Lip, and Cheeks.*

Case IX.—Pierre Joseph Guillaume, æt. 30, rope-maker, was submitted to treatment on the 20th November. The alæ, septum, and lobe of the nose, were ulcerated and corroded to the extent of three lines; the upper lip hypertrophied, indurated, stiff, and drawn forward and upwards, so that the mouth gaped widely apart. The nose was not only ulcerated and destroyed to a great extent, but the remnants of the lateral cartilages and the septum were soft and bleeding; so that these parts, as well as the upper lip, bled freely on the slightest motion, in speaking, eating, &c. Much pain was frequently occasioned by these slight hæmorrhages removing incrustations from the sores, although the corroding ulceration was absolutely free from pain. At the orifice of the nostrils there was an oval ulcer, the centre of which corresponded to the cartilage of the columna nasi, and its two extremities to the lobes of the alæ. This ulcer was covered with crusts, which were still more abundant in the nasal fossæ. At each side of the nose, the lower third of the cheek

was red, hypertrophied, and covered with little groups of pustules on the point of forming small spreading centres of ulceration. In this manner it was that the ulceration of the nostrils first commenced in the lobe of the left ala, then in the cartilage of the septum, then in the lobe of the right ala, and lastly, the increase of the individual ulcers occupied the interval by which they were originally separated. I lay the more emphasis on this mode of formation, as I find, by long experience, that it constitutes one of the leading diagnostic marks of the morbid anatomy of scrofulous ulcers.

The disease had commenced when the patient was 26 years old, in the spring-time, on the right ala. In four months he was dismissed from his regiment. The ulcer, however, increased but little till the next spring, and his state on admission was of three months' duration.

At 16 years of age he was similarly affected for a year, when he was cured by an ointment recommended by a woman. His history showed no hereditary influence whatever.

The treatment was commenced with the ointment of the proto-ioduret of mercury; and in one fortnight the most astonishing progress was made in the cure. The erosion was manifestly arrested, the ulcers looked better, and the tissues had recovered much of their natural sensibility. This case interested us more than most others, from its having been the first in which I tried the proto-ioduret of mercury. Before then I was in the habit of treating this kind of scrofula with the hydriodate of potash. On this occasion I changed the remedy, from the syphilitic aspect of the sore. The statements of the patient were not, however, in the least degree corroborative of this suspicion.

In six weeks the principal sore became contracted into its three small primitive ulcers of the lobes, alæ, and septum of

the nose; no more local hæmorrhage was occasioned by the movements of respiration, speaking, mastication, &c.; the upper lip had decreased in size, and only exhibited some few pustules, none of which were visible on the cheeks. After three months' treatment the patient was nearly cured. Two minute points of ulceration still remained, which resisted the iodine applications for a considerable time; and which at length seemed so perfectly to belong to the ordinary irritable ulcer, that I treated them by the gentle application of the caustic nitrate of mercury, under which they rapidly improved, and were eventually healed.

The patient continued in the house as an assistant in the ward for about two months, at the expiration of which he solicited his discharge. No relapse had then taken place; but on the 3d November he was re-admitted for a relapse, which was cured in five weeks by the use of ioduretted solutions. He then became apothecaries' porter in the hospital; has been for five months free from any ulceration; and the parts previously affected are, in every respect, in the most healthy condition.

Cervical Tubercles—Corrosion of the Neck and Face—Absence of the Hereditary or Occasional Causes of Authors—Cure in a Year's Treatment.

Case X.—Henri Michel, æt. 18, bookbinder, of young and healthy parents, and whose surviving brothers and sisters, on an average, enjoyed good health. When six years old he had tubercles in the neck, and subsequently several others. Most of them had been ulcerated; and the skin of this region consequently became hypertrophied, and covered with pustules. At 13 the corrosion became more developed from below upwards, and gained the right side of the face. Its

spreading was effected by groups of pustules, seated on red spots, of hypertrophied consistence and variable extent. These pustules gradually became ulcerated at top, and covered with incrustations. Cicatrization took place, after a suppuration of more or less duration: and at the same time new pustules appeared in the same manner, keeping up an endless succession of eruptions.

At 17 the malady made new progress, and gained the inferior half of the left cheek and lower lip, extending itself in the manner just described. At 18, when Michel first was subjected to our notice, the right side of the neck and face, the inferior half of the left cheek, some points above it, the lower and upper lips, were all involved in the corrosive (esthiomenic) form of scrofulous ulceration. Clusters of pustules were especially conspicuous on the right cheek, behind and upon the great angle of the lower jaw at the right side, at the base of this bone, and on the inferior extremity of the masseter muscle; on the right commissure of the lip, which was deeply ulcerated, at the bend of the lower jaw, at the left side, on the free edge of the lower lip, and on the chin. Between these pustular spots, the skin was hypertrophied, indurated, and marked with the cicatrices of old sores. The disease was present in all its stages of germination, maturation, incrustation, and healing of the pustules. From the hardness of the cutaneous tissue in the affected places, the motions of speech, mastication, &c., were much impeded; and sometimes hæmorrhages were occasioned. In other respects, no local pain had ever been induced by the disease. For a fortnight before admission there existed some coryza and incrustations of the nasal cavities, but without perceptible ulceration of the pituitary membrane.

14th October, 1829.—Ioduretted treatment. For several months the patient had experienced but very insignificant amendment. The ioduretted mineral water was nevertheless

suspended during the winter, and the management of the case confined to the local use of the iodine solutions. Notwithstanding this apparently inactive treatment, towards the end of February, 1830, the disease, which according to its spontaneous progress should have acquired more intensity from the influence of the approaching spring, now experienced decided amelioration. The pustules became less confluent; a tubercle behind the angle of the jaw diminished in volume; and the disease was, on the whole, in a state of convalescence.

In the month of March the internal use of the iodine was resumed. In April I commenced touching the ulcer with the rubefacient and caustic solution. The application was made every second day, or rather thrice a week, when the patient returned from the bath. The local pain occasioned was at first very intense, but diminished in proportion to the declension of the disease. In the intervals of the application of the caustic the ioduretted ointment was rubbed on the affected parts. The cure has now been complete for six months, and no relapse has occurred up to the 23d April. The caustic iodine being applied to the cicatrices at different times after their formation, occasioned no pain till the spring season, when smarting was occasioned, as if by a lurking, but inadequate, tendency in the parts to the reproduction of the disease.

§ IV,—IODINE IN SCROFULA OF THE CELLULAR TISSUE.

The tumours which occur in the neck in scrofulous persons are usually formed of tubercles. There are cases, however, in which the malady is but a chronic abscess, and has its seat in the subcutaneous cellular tissue, no tubercles whatever being produced.

The careful diagnosis of these swellings will be found an

important means of the certain prediction of their results. A chronic cervical abscess is always of shorter duration than the tubercular swelling. It is curable in every case, whatever be its volume, by the preparations of iodine; on the other hand, the tubercular swellings, when they have attained a certain size and degree of induration, are more difficultly influenced by this medicine.

Chronic Abscess, as large as both Hands, at the Left Side of the Neck—Puncture and Iodurretted Injections, Dressings, &c.—Cure in Six Weeks.

Case XI.—Victor Auguste Dubois, joiner, aged 18, admitted into the Hôpital St. Louis, 24th August 1830. His constitution appeared to be soft and weak; his skin very white, but scattered over with red spots; his hair was red, his chest narrow, and his respiration habitually impeded; his father and mother had not, as far as we could learn, been affected with scrofula, but of eight brothers and sisters four were manifestly tainted with that disease. Since infancy he had been afflicted with impetigo of the scalp and obstinate ophthalmia. Having come to Paris at the age of 16 he was attacked with chilblains, which rendered him lame of the right foot. At 18, after having been chilled, he experienced a dull pain under the right angle of the lower jaw, where an enormous abscess shortly formed, the progress of which was much accelerated after the application of ten leeches.

Eight days after this I saw the patient. The right cervical region was completely occupied by a knotty hard tumour. The superjacent skin was not altered in colour, there was no local heat. The tumour pressed most painfully on the subjacent parts, which it displaced considerably, although it projected externally to the volume of both hands.

The head was thrown towards the left shoulder; the skin was extended and painful, though unyielding to the touch; the œsophagus and trachea were so compressed that respiration and deglutition were greatly embarrassed, and the patient could consequently swallow nothing more solid than bouilli.

Treatment.—Frictions morning and evening, with the ointment of the proto-ioduret of mercury; ioduretted poultices after the frictions; mineral water for internal use; two or three sulphureous baths weekly.

9th September.—Tumour punctured where the skin seemed thinnest, &c. A quart of pus, mixed with albuminous flakes, was discharged. An ioduretted solution was injected into the empty cyst. Immediately after the puncture, the effects of the under-compression disappeared, and the patient swallowed and breathed without difficulty.

20th September.—Upper part of the opening cicatrised. Another puncture was required. The discharge having become crusty, the edges of the openings were thrice or four times touched with the caustic iodine, and the patient left the hospital cured on the 9th October, with no sequel of the disease but a slight hardness of the parietes of the cyst, which had contracted adhesion to the cellular tissue beneath.

Double Ophthalmia since infancy, fistulous abscess since 18 on the left natis, the lumbar region, anterior superior spines of the ilia and the thigh and groin at the same side—Five Tubercular Ulcers on the Neck—Singular Hereditary Influence—Cure in Four Months and Twenty Days.

Case XII.—Edward Buttot, aged 21, mercer, of tall stature, olive complexion, and brown hair, was placed under the iodine treatment in the following condition:—

Slight ophthalmia, eyes moist, numerous minute spots

around the cornea, vision short, and so weak that he could not read a few pages of a book at any time. This state of the eyes was the sequel of a more intense ophthalmia, habitual since infancy up to 15, when it had happily been much modified by the small-pox.

On the neck there were five tubercular ulcerations: three at the right, two at the left side, and at each side the skin was deeply changed, moist, soft, and covered with vegetations. The left natis presented on its middle part two deeply-depressed scars, puckered up and adherent to the subjacent parts; these were the effects of an enormous abscess which had occurred in the iliac fossa, and which remained fistulous for two years. There was a similar cicatrix on a level with the last lumbar vertebræ, the abscess from which this proceeded had been fistulous about two months. Two cicatrices also existed towards the anterior superior spine of the bones of the left ilium; the skin in this part was red, soft, impregnated with pus, discharging a serous fluid, which gave rise to incrustations. Besides these there were also six ulcers on the groin and thigh of the left side, all of which had supervened since his eighteenth year.

With respect to the supposed causes of the disease, this case is peculiarly interesting. His father had six children by his first wife, all scrofulous, and six by a second marriage all exempt from that affection.

1st August, 1829.—Ioduretted dressings, and frictions over the scars, with iodine collyria injected into the eyes. Ioduretted mineral water and sulphureous baths. One month after the commencement of this system he could read with facility. Two ulcers in the neck and two in the groin were quite healed.

In three months all the ulcers were closed and vision quite perfect; I then suspended the local treatment, but was shortly forced to resume it for two ulcers which again opened

on the right side of the neck, but which became permanently healed, after a few dressings, with the ioduretted ointment.

Six Fistulous Ulcers in the thick part of the left Thigh—Hypertrophy and Induration of its cellular tissue—Longitudinal Ulcer crossing the left Clavicle—Caries of the left Patella—Fistulous Ulcer in the middle and posterior region of the right Thigh—Eight months of Ioduretted Treatment—Cure.

Case XIII.—Antoine Francis Regnaudin, aged 15, born of a father aged 35, who laboured under pulmonary tubercles. A sister died of caries of the vertebræ at 9 years of age, and he had two surviving brothers deformed in person and curtailed in stature, in which respects he resembled them considerably.

On admission he had two fistulæ: one at each extremity of the anterior and middle third of the left thigh, produced originally by a seton which had been inserted about five years before for a large chronic abscess situated under the fascia lata; another fistulous ulcer existed in the left groin, and a third an inch beneath it; a fourth was situated beneath the inferior angle of the patella, and its external orifice was extensively ulcerated; a fifth beneath the middle and internal part of the thigh; an ulcer three inches long crossed over the clavicle; and lastly, there was a deep fistulous ulcer on the posterior part of the right thigh.

The malignant appearance of these numerous ulcers could not be exceeded, from their depression, the redness of their edges, and the hypertrophy and induration of the surrounding tissues. The left thigh was thus nearly doubled in volume, and its skin blackish and swollen, and affording a strong contrast to the beautiful whiteness of the integuments in

other parts of the body. All the ulcers were fistulous and suppurated abundantly. The pus ejected from them by compressing the surrounding parts was yellowish and extremely fluid, forming incrustations around and sometimes over the ulcers, whence they were readily detached by a fresh discharge of pus.

The deepest and most extensive of the fistulæ, and that communicating perhaps with all the rest in the same limb, was situated at the internal and middle part of the left thigh; the probe indicated an immense cavity situated from below upwards, and containing a purulent collection, probably encysted, for we could not reach the bones. The probe introduced into the patellar ulcer led directly to that bone, which nevertheless we could not find to be denuded in any part.

Besides the ulcers thus minutely described, a vast number of cicatrices also existed which originated in the same manner. One was the sequel of the ulcer with which the malady commenced at the ninth year of the patient's age, behind the superior extremity of the left radius and on the external side of the olecranon process. Eight other cicatrices, some of very large extent, and all depressed and adherent, were visible in different parts of the body. All these abscesses had occurred successively within six years, and their appearance was generally more frequent in summer than in winter.

The state of emaciation to which he was reduced may be readily imagined. He was unable to walk; he consequently was confined to bed for three weeks after admission, at the end of which time the iodine treatment having exerted itself very beneficially he was obliged to walk up and down in the open air for some hours daily. During three months, walking was very difficult, but at this period a small scale of bone escaped from the patellar fistula, after which it rapidly healed up, and his lameness abated.

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The other ulcers eventually disappeared nearly in the order of their occurrence, and he was dismissed perfectly cured after eight months' treatment, on the 27th November 1829.

Scrofulous Disease of the Cellular and Adipose Tissues of the lower Extremities, which were swollen to a prodigious size—Numerous Cicatrices, Tumours, and Fistulous Ulcers—Amenorrhea.

Case XIV.—The case I am about to relate offers one very remarkable feature; namely, the general and extensive lesion of the adipose cellular system of the lower extremities, existing for ten years without any concomitant affection of the bones or skin. The probable cause of the disease in this instance, though by no means rare, is still worthy of notice. I have indeed, from repeated observations, been perfectly convinced that children may become scrofulous by being reared on the milk of a scrofulous nurse.

Marie Henriette Levalloix, æt. 20, embroideress, was admitted on the 23d July, 1828. She was of diminutive stature, her nose flat, upper lip rather tumid, the cellular tissue generally too much developed, the skin white, complexion high, her menstrual function was very irregularly carried on, having since its first appearance two years before admission recurred but three times. Her family were all exempt from any scrofulous contamination; she was never exposed to privations, and she had always resided in dry climates and habitations. Her nurse and her foster-sister both died of scrofulous diseases.

The first occurrence of scrofula took place in this young woman in her tenth year; it first showed itself on the metatarsal articulation of the third toe of the right foot in the form of a hard tumour, which became ulcerated, and gave

rise to a fistula discharging ill-conditioned pus. In less than two years ten or a dozen other fistulæ of the same extent appeared on the back of the foot, and became cicatrised one after another; two of these fistulæ were still open when the disease reached the leg and thigh, where tumours of the same nature, but of greater size, occurred and proceeded in the same manner. To these succeeded abscesses, fistulæ, and cicatrices, deep in proportion to the duration of the antecedent suppuration.

This uninterrupted series of chronic abscesses appears to have been arrested at the end of five years on the right lower extremity, but for three years the opposite limb was similarly affected. Abscesses thus perpetually forming, healing, and re-appearing, she entered our hospital, presenting the following appearances.

The right foot was covered with white solid scars, some superficial, others sunken and adherent to the subjacent tissues; cicatrices of the same nature existed on the leg and thigh, some were on a level with the skin, of a round shape, and as large as a ten-sous piece, others were longitudinal, hollow, adhering to the muscles or bones, and strikingly resembled the long furrowed marks left after necrosis or the operations necessary for its cure. The patient, however, declared that no bony fragments had ever been discharged or extracted from these fistulous ulcerations. Two of these cicatrices descended parallel to each other for an extent of three inches in the region of the left calf, the fleshy parts of which were destroyed; so that there only remained of the muscles a thin fold like a crest, separated by a double furrow. Lastly, other large scars were hollowed like a tunnel in their centre. Such was the condition of the right leg.

In the opposite limb the same changes had been wrought by the disease; it is therefore superfluous to describe its condition. At both sides the knees were of almost monstrous

form and dimensions; the thighs also were double the natural size; so that the disease might have been taken for an example of elephantiasis did not the skin and subjacent parts contradict such a supposition.

The right thigh was the seat of dull general pain; an ill-defined and extremely hard swelling was perceptible at its inner and superior portion; ulceration had taken place superiorly and externally; there was also an ulcer above the knee, and two on the external side of that articulation: these sores were red, livid, and shining. On their surface were numerous minute points of ulceration of the size of a lentil, pale, livid, covered with a layer of greyish matter, and giving issue abundantly to a discharge of reddish serum. An oval tumour, the size of two hen's eggs, of remarkable hardness and immobility, was felt beneath the left popliteal space. It was painful to the touch, and checked the motions of the limb; the superincumbent skin was free from redness.

Despite of this prolonged series of afflictions the general state of the patient was sufficiently good, and all the functions, except the menstrual secretion, regularly performed.

20th August.—The ulcers on the right limb had ceased to discharge, and were nearly healed. The swelling of the thigh was no longer painful, but that beneath the left ham had increased in size, and its degree of heat, redness, and hardness, was also greater. After a tedious progress of about two months it opened spontaneously, and discharged an abundance of ill-conditioned serum. The patient experienced much relief from the evacuation, but the tumour nevertheless lost but little of its hardness and volume. An ulcer, the size of a French bean, formed round the opening, of a grey colour within, and its edges softened. A stilette was introduced an inch and a half into the solid swelling, without meeting any bony parts.

2d Sept.—A new abscess had formed on the back part of the right thigh, in consequence of a fall some days before.

16th Sept.—The local action of the iodurettted ointment now being very weak, I ordered that of No. 2. For three weeks the iodurettted water had occasioned colics, but this effect having ceased, the remedy acted powerfully as a diuretic, and it also excited the appetite very much. The patient was ordered a grain of iodine daily.

5th November.—Catamenia occurred twice during the preceding six weeks; general health much improved, but domestic affliction of no common kind contributed to derange her system.

6th January, 1829.—Catamenia supervened, and lasted six days.

6th February.—Menses again secreted, and for the same period. Local pains of lower extremities dissipated; suppuration less copious, and of better quality. The domestic misfortunes, however, already alluded to, now forced her to quit the hospital, having but three trivial fistulæ remaining, one on each thigh, another corresponding to the last abscess, which took place in the left calf. The lower extremities had lost their elephantine dimensions, and returned nearly to the normal size. I entertain no doubt of the total and spontaneous cure that awaits this patient.

TREATMENT OF SCROFULOUS CICATRICES.

Under this head I wish to notice a particular form of the scrofulous cicatrix. The patient alluded to in the preceding case had formerly been affected with tubercles on the right side of the neck, the cicatrices from which resembled strongly

the valves formed at the origin of the aorta by the reduplicature of its internal membrane.

We had in the hospital at the same time a young woman named Lecompte, whose neck at both sides presented exactly similar cicatrices; their form on the whole was so peculiar, that an inexperienced eye might have supposed it a special effect of scrofula; I have, however, but very rarely met with the appearance in question.

Had I met with any additional examples of this kind, I should have treated them by a particular method, which I am in the habit of using with much success in certain varieties of the cutaneous scrofula. I should have cut out these valves with curved scissors, and then touched the wounds with iodine, either of rubefacient or caustic strength, in order that the incisions might not degenerate into scrofulous sores, and that their healing might be accelerated. The following is an example of the success of this mode of proceeding in a very singular instance of scrofula.

Case XV.—A weaver, æt. 19, laboured under a scrofulous affection of the skin of three inches in diameter, situated on the left side of the face and neck, from half an inch beneath the lobe of the ear to the extremity of the corresponding horn of the hyoid bone; the diseased part was remarkable for its containing in its centre a patch of sound skin, forming a sort of island, surrounded with a riband three lines in width, of red softened skin, impregnated with pus.

I at first treated the affection with ioduretted applications, and by the internal use of iodine.

10th December, 1830.—After a month of this treatment little improvement was experienced. The skin was more than ever softened, and the pus accumulated beneath it, though it was pierced with numerous holes. I might have subdued this morbid condition of the skin by a more ener-

getic local treatment, and by impregnating it strongly with iodine; but this process having appeared too tedious, I determined on cutting away all the portions of the softened skin, and then touching the bleeding surface with concentrated iodine: I had already practised this plan in similar, though less difficult cases, with decided success.

At first only two-thirds of the morbid skin were cut away, the lower third being left, in consequence of the minor degree of morbid alteration it had undergone.

15th February.—The portion of the skin allowed to remain after the excision of the rest was now swollen, and attacked in its turn by the scrofulous inflammation; at its superior extremity there was an ill-looking ulcer, and there was no tendency to healing in the incision first practised, I therefore removed the other third, and from that moment the progress to a cure was decided.

This patient, whose hereditary disposition to scrofulous disease, and her own peculiar liability to its inroads, rendered almost a constant victim to its effects, remained in the house for other forms of the affection when this memoir went to press; her neck, however, continued to be much improved, and the cicatrix resulting from the excisions was completely closed.

§ V.—IODINE IN SCROFULA OF THE BONES.

White Swelling of the Elbow, with Caries and Abscess—Five Months' Iodureted Treatment—Cure.

Case XVI.—Pierre Ducret, æt. 17, of small stature, weak constitution, and almost mulatto complexion, entered the Hôpital St. Louis in a state of extreme emaciation from a white swelling of the elbow, with caries and abscess.

This young man arrived in Paris at the age of 15, and he

then first experienced the approach of the disease by a dull swelling and embarrassed movement of the left cubito-humeral articulation. The progress of the disease was extremely slow. In April, 1830, the swelling became hot, and the local symptoms acquired increased intensity. When he was admitted on 29th May, the left fore-arm was kept flexed almost to a right angle, a fusiform tumour embracing the humero-cubital articulation and the lower part of the arm, the extreme attenuation of which announced the gravity of the articular disease.

A puncture practised just on a level with the olecranon gave issue to an enormous quantity of serous pus. A probe introduced by the ulcerated opening detected the existence of caries of the olecranon process, into the substance of which the instrument entered. Injections, frictions, and iodurettted dressings, were directed.

The history of this patient presented no hereditary or occasional cause. He was a twin child, ever of weak frame, and checked in his growth, while his brother was of sufficiently vigorous constitution : of seven brothers or sisters all are living and well, from the eldest aged 27 to the youngest aged 12.

A few days after the puncture of the abscess the opening became changed into a fungous round ulcer, the diameter of two francs. Arm baths, containing iodine and the iodurettted mineral water, were now directed, in addition to the previous items of treatment.

Early in July the disease showed marks of improvement and approaching cure. The size of the elbow was diminished, and already the joint, which before the treatment was round and perfectly motionless, admitted of partial flexion and extension.

By the beginning of September little swelling of the joint remained, the ulcers which had been touched with iodine

were healed, and the cicatrices daily increased in solidity. Flexion and extension of the fore-arm were executed without pain, otherwise these movements were accompanied by a grating sensation, which indicated that a part of the diarthrodial cartilage was destroyed, a circumstance which will probably prevent the complete restoration of the power of motion. The limb had, however, regained its natural muscularity and strength.

7th Nov. 1830.—After five months' treatment Ducret left the hospital, only retaining a slight degree of stiffness in the motion of the elbow, and the joint had almost completely recovered its healthy dimensions.

White Swelling of the Left Shoulder—Numerous Chronic Abscesses and Fistulæ—Marasmus of the Arm—General Failure of Strength.

Case XVII.—Augustus Boule, æt. 32, lace-maker, of middle size, was admitted on the 20th October, 1829. His father had died of an acute illness in three days; and his mother fell a victim to sorrow some time after. A maternal aunt died of phthisis pulmonalis; and one of his children was a scrofulous patient in our establishment. Two brothers died of diseases not scrofulous: a third survives in good health.

Until 14 years old this patient enjoyed good health; but since then the scrofulous disposition has unceasingly shown itself, at first in the form of chronic abscesses, then of ulcerated tubercles; and lastly, the bones became attacked in a very alarming manner, and the most extreme emaciation supervened. I proceed to give the patient's history, according to the order in the occurrence of his symptoms.

1. Acute pain, referred to the back, close to the vertebral

column. This persisted for some time, when a vast congestive abscess appeared, which remained fistulous for seven or eight months, and was succeeded by three other abscesses of the same kind, at rather distant intervals.

2. New abscesses formed in the right groin, the result of tuberculous ulcers. Tubercles were now rapidly generated in the left groin, and at the same time in the submaxillary and cervical regions. All these swellings followed the same course of softening, fistulous ulceration, and spontaneous cicatrization. The axillæ, the sides, and thighs, were also, at different periods, the seats of fistulous ulcers.

3. October, 1828, he was received into La Pitié, for one of these chronic abscesses; and he there first underwent a mercurial treatment, although he never had laboured under any syphilitic disease. During his stay in that hospital he began to experience a smart pain in the shoulder, accompanied with considerable swelling. Energetic antiphlogistic measures were directed against this, with the effect of only debilitating the patient. Dismissed from La Pitié, he entered the Hotel Dieu, where antiphlogistic treatment was again pursued, and brought him into a miserable state.

On the 21st October, 1829, when the iodine method was commenced, his symptoms were reported as follows:

The right shoulder rounded, and nearly doubled in size; the arm in a state of extreme emaciation. Behind, the shoulder was separated from the back by a large ulcer, extending from the hollow of the axilla, to the extent of eight or ten inches. Anteriorly there was a large ulceration, produced by the confluence of several fistulous sores, extending from two inches beneath the humeral extremity of the clavicle to the anterior edge of the hollow of the armpit. This immense ulcer was perforated by a crowd of fistulous openings, through which pressure forced a considerable quantity of purulent matter. A probe introduced into these openings did

not reach the bone. Another large ulcer descended from the base of the shoulder, along the external border of the biceps, to the middle of the arm. The movements of the joint were completely lost; and the slightest attempt at producing motion occasioned great pain.

The purging, hectic, and marasmus, produced and kept up by the severity of the local diseases, concurred to make us apprehend that the patient could not survive more than a few days, and that his history would only prove auxiliary to the researches of pathological anatomy. He was, nevertheless, placed under the iodine treatment; experience having taught us that no case of scrofulous disease was so desperate as to preclude hope.

21st October, 1829.—Local frictions; dressings with the ointment of the proto-ioduret of mercury; the ioduretted mineral water to be taken internally.

Two counter-openings were made during the winter, to facilitate the discharge of the pus.

Until the month of February the disease had experienced no further amelioration than a slight diminution in the discharge, and perhaps a degree of contraction in the ulcer. The aspect of these was, moreover, rather more favourable. These changes, however, were far from being sufficient; and I even deemed them likely to be of a very transitory duration, and that very slight or spontaneous causes might occasion the aggravation of all the symptoms.

In the course of this month I punctured an immense abscess, which occupied the triangular space at the base of the neck. After the puncture a solution of iodine was injected into the site of the abscess. By this proceeding the disease was modified in the happiest manner. The local pain diminished, and rapidly disappeared altogether; the suppuration became less abundant; the appearance of all the ulcers announced their approaching cure, the purging ceased, the

appetite returned, and the general state of the patient corroborated the real nature of the local improvements.

In the course of the ensuing May, the anterior ulcer of the shoulder was healed, and the parietes of the subclavicular abscess adherent. Of the ulcer on the posterior surface of the shoulder there then only remained a band half an inch in breadth, in the centre of which there still existed a grey, soft depression, of a fungous aspect, which retarded cicatrization, and resisted the iodurettted ointment, which now seemed too weak to induce the necessary action in the morbid parts. This defect, however, I remedied in a few days, by touching the sore with the rubefacient iodurettted solution.

24th June.—The shoulder had nearly recovered its natural size; the ulcer had not yet perfectly healed; the patient began to use his arm a little; the previous general emaciation was replaced by considerable plumpness; in short, every thing indicated an approaching cure.

15th August. — Almost well: some minute fistulous ulcers, however, still existed around the shoulder. The patient peremptorily required permission to leave the hospital.

During the first days of September the shoulder again became red and swollen, the fistulæ re-opened, the parts became excessively painful, the appetite declined, and the general state acquiesced in the derangement. For this relapse I immediately commenced a most energetic local treatment. Morning and evening a cataplasm of flax-seed, strongly impregnated with iodine, was applied. Frictions being impracticable, from the tenderness of the parts, the cataplasms were consequently made of double strength. The intensity of the pain totally preventing sleep, the iodurettted poultices were sprinkled with laudanum, when they were applied quite warm to the shoulder. During a month the patient took every morning a cup of an aqueous infusion of rhubarb.

In fifteen days the acuteness of the local pain was diminished, and the laudanum was no longer added to the poultices. The fistulous ulcers suppurated most abundantly, and were dressed with pledgets of charpie thickly spread with the ointment of the proto-ioduret of mercury; and above this dressing iodurettted poultices were applied. The mineral water was again ordered to be taken after the dose of rhubarb. The treatment was thus continued to the end of the year.

By the 1st of January there were only two small fistulous tracts on the cicatrix of the ulcer, which, on the posterior aspect, separated the shoulder from the back. There is a third at the base of the shoulder. No local pain is now experienced; there is nearly complete anchylosis of the shoulder joint; the state of the appetite, sleep, &c., are perfectly satisfactory: the patient only complains of the fatiguing listlessness occasioned by his absence from any active occupation.

I have brought forward this case of white swelling of the shoulder, although the cure is still incomplete, because I thought it could not be devoid of interest to examine the effects of iodine in such desperate cases. Especially, I believed that the local treatment adopted on the relapse was worthy of being prominently noticed. It is certain, at least, that no other mode of treatment would have arrested the disease; and that the energetic local measures I prescribed were sanctioned by the specific nature of the case.

Fistulous White Swelling of the left Knee cured in Two Months, with Anchylosis, by Iodurettted Preparations and Exercise.

Case XVII.—Julien Gerard, newsman, æt. 31, of middle stature, and sufficiently good constitution, entered the

Hôpital St. Louis on the 24th April 1830, for a white swelling of the left knee. There was anchylosis of the femoro-tibial articulation, and it seemed as if the limb was dislocated inwards. On the thigh close to the ring of the third adductor there were two cicatrices adherent to the bone. Internally, from the site of these scars to the middle of the limb, the skin was of an erysipelatous redness, perforated with eight or ten fistulæ, through which a great quantity of pus was discharged. The hollow of the ham and all the posterior part of the leg were covered with scars.

Gerard had the same disease in the right knee, by which he was confined to bed for ten years. The knee was distorted by the swelling of its internal condyle, and as the same organic change had taken place in the knee actually diseased, the internal condyles of both joints touched each other in the erect posture, while the feet, on the contrary, were directed outward. The right lower extremity was on the whole shortened about two inches.

Besides these affections, there was a deep, round scar adhering to the sternum, the result of an abscess which took place spontaneously at the base of this bone. This abscess was long preceded by acute pains referred to a little beneath the left nipple, and eventually becoming fixed on the spot where the abscess formed. Was this a pleuritic abscess or empyema, which, by caries of the sternum, made its exit externally? The extreme dyspnœa which occurred prior to and ceased immediately after its rupture, corroborates such an opinion. However this be, the abscess became emptied, its parietes cohered, and the fistulous aperture spontaneously closed.

On the 24th April, 1830, he was admitted into our hospital, and three days after he was subjected to the specific treatment, viz.—ioduretted frictions, cataplasms, and mineral water. During the first days we were obliged to remit the frictions on account of the local pain, which was greatly

aggravated. On the 10th of May the frictions were again resumed, and on the same day he began to walk, and continued to do so during the entire course of his treatment. Soon after this the suppuration diminished one half, and towards the end of May all the fistulous tracts were completely obliterated, and the patient only complained of the stiffness of the joint.

20th June. The fistulæ closed; the cutaneous tissue had resumed its natural pliability and colour.

24th August. Left the hospital, having been cured for two months. Imperfect anchylosis had, however, occurred in the right knee. The patient, nevertheless, made efficient use of the limb, and there is reason to believe that its rigidity will eventually decrease.

White Swelling of the right Knee—Three fistulous Ulcers—Hypertrophy and Induration of the soft parts of the internal half of the Thigh—Cure in Three Months.

Case XVIII.—Louis Nicolas Irdot, æt. 26, carter, of small stature, and sufficiently robust constitution, was admitted into the Hôpital St. Louis, Salle St. Jean, on the 24th March 1830. His father, a street-porter, with the exception of tender eyes and occasional ophthalmia, enjoyed good health; his mother also was free from habitual disease. Of fourteen children, eleven died in infancy; there remained a female æt. 30 in good health, a brother æt. 14 of weakly constitution, and the third, the subject of present notice. From his infancy he presented symptoms of scrofula; he had been harassed with chilblains and indispositions of every kind, aggravated by deprivations and mendicity during his youth. At 15 he laboured at country work to the decided improvement of his health. At 22, after having lain on the ground

while in a state of profuse perspiration, he experienced pains and swellings in both knees. This attack lasted four months. Two years after it returned without evident cause. It yielded readily in the left knee, but was aggravated proportionately in the right, which had been eighteen months affected when we saw him for the first time.

The right lower extremity was then disfigured by a hard fusiform tumour occupying the lower half of the thigh and the knee. At each side of the joint was a fistulous triangle. The soft parts in general were indurated, and approaching to the adipocirous state observed as a sequel to white swellings of the knee. The periosteum, and probably the femur, were enlarged, but the fistulous canals did not terminate on any carious surface. The leg was flexed on the thigh at a very obtuse angle, and its complete extension was impracticable. At the external surface of the thigh, close beneath the great trochanter, there were numerous cicatrices, which had long been fistulous like those still existing at each side of the knee. The lymphatic ganglia of the right groin were slightly swelled, but there were no tubercles in any other part of the body.

When the iodine treatment was commenced the patient had been eighteen months bed-ridden. Sulphureous baths were also ordered, and he was obliged to take moderate exercise in the hospital walking-grounds. This method was attended with the most beneficial and rapid results. In six weeks he could walk with facility, and in three months he was cured.

The iodine practice was followed for six weeks after his cure, when he left the hospital in excellent health and spirits.

Hydarthrosis—White Swelling of the left Knee—Cure in Three Months.

Case XIX.—Francois Devois, æt. 30, a scavenger. This patient lost his father and mother when he was but a year old. His infancy was wretched beyond description, he having experienced the most brutal usage from relatives who had afforded him an asylum. At 7 years he had violent coxalgia, caused by blows and a fall down a flight of fifteen or sixteen steps. At 9 years he became a shepherd-boy, and was much exposed to wet, under the influence of which the hip again became worse, and three abscesses formed in the middle third of the thigh. At 15 he became lame from a recurrence of the same disease.

At 30 years of age he experienced violent pain in the left knee, which perpetually increased during a month, and for several weeks that he was a patient at the Maison de Sante. Finally, he entered our hospital, presenting the following symptoms :—

The knee was greatly swollen and of an unnatural form, in consequence of the projection of the patella, which was elevated by a quantity of subjacent synovial fluid. Fluctuation was distinctly felt on percussion, and the patella was readily moved from its proper place. The inferior third of the thigh was enlarged and indurated ; the leg bent to a right angle on the thigh ; the condyles of the femur seemed also to be hypertrophied ; the hollow of the femur was full of hard, indolent, undefined, tubercular matter.

The upper third of the thigh and its upper and posterior part bore large cicatrices, resulting from his former ulcers and from applications of the actual cautery, practised for the relief of the affection of the hip joint.

On the 3d March, 1829, I caused a large blister to be

applied over the internal condyle of the femur where the swelling was most decided and painful. The following days the pain was abated and the effusion into the cavity of the joint was in a process of absorption.

On the 8th, frictions of the ointment of the proto-ioduret of mercury were directed every morning and evening. After the friction, a cataplasm of linseed meal with an ioduretted solution was applied.

By the end of April the white swelling was cured; the hollow of the ham was free from tubercular matter; the swelling and hardness of the thigh were entirely gone, and the knee had recovered its various movements. The iodine treatment was nevertheless persevered in till the middle of May, when he was allowed to depart perfectly cured.

Spontaneous Luxation of Long Standing—Consolidation of the left coxo-femoral Articulation—Formation of Abscesses and Fistulæ—Antiphlogistic treatment and confinement for a year without success—Cure by Iodine in Six Months.

Case XX.—On the 5th September, 1830, I was called on by M. Barré to visit one of his patients, a young man who had been confined to bed for some months, and whose sallow countenance bore evidence of extreme dejection of spirits.

Four deep fistulæ existed in the upper, posterior, and external part of the thigh. I was unable to examine their direction from the terror excited in the patient by the very appearance of the probe. The division of these fistulæ was once proposed to the patient by one of our ablest operative surgeons, but was absolutely refused. All the fistulæ suppurated abundantly, the discharge being transparent, rather consistent, mixed now and then with tubercular flakes. No

bony scales had been or were discharged, although everything indicated caries of the great and little trochanter, and perhaps of both the bifurcations of the linea aspera of the femur. The skin was tense, shining, elevated by the induration of the cellular tissue. There was much local pain, the thigh was emaciated, not half the size of that of the opposite side.

M. C. had at seven years of age a spontaneous luxation of the left femur, with a symptomatic abscess, of which he had been cured in two years without any treatment. A false joint and shortening consequently occurred. He nevertheless was able to follow all the ordinary exercises of life; he even hunted occasionally, and experienced no ill effect beyond pain in the hip during cold and moist weather.

The existing disease was of a year's duration, and occurred while the patient dwelt in a humid situation on the banks of the Marne. At first it was treated with leeches frequently repeated, cataplasms, absolute diet, and the most rigorous repose; but after four months of this practice a chronic abscess supervened, which was bounded by the great trochanter. The suppuration from this being very profuse, the antiphlogistic method was abandoned. A large blister applied over the ischiatic notch abated the pain, but did not influence the cause of the evil, for a second abscess supervened above the first, two inches beneath the superior and posterior spine of the ilium. In this state, a practitioner not less celebrated than the first was called on, and decided that there existed caries of the crest of the ilium. Poultices were ordered to the hip, cerate to the fistulous openings, spare diet, and absolute rest. This plan was, however, found no better than the first; for in three months a third abscess opened in two places, at the external and posterior part of the thigh two inches beneath the first. Incisions were then proposed and rejected as before mentioned, when by the

advice of M. Barré recourse was had to the iodine treatment, under which he was perfectly cured in six months.

6th September, 1830.—Ioduretted mineral water, ioduretted injections into the fistulous tracts, ulcers to be dressed with the iodine ointment; to have two ioduretted baths weekly; substantial nutritive or even tonic diet. He was directed to walk up and down his room several times every day.

M. C. was scarcely brought under the influence of iodine before he was improved, the suppuration diminished, and was less liquid in consistence. In six weeks the fistula near the crest of the ilium was closed. Fifteen days later, this cicatrix again opened and discharged a moderately large quantity of pus, but in a fortnight more it became permanently healed. The other fistulæ at this period (end of November) suppurated very scantily, although their depth was apparently not diminished.

The doses were therefore increased, both locally and internally. Some change was also made in the mode of taking the baths, and sulphureous baths were alternated with those of iodine.

By these means the subcutaneous swelling was dissipated, the patient's strength returned, he regained flesh and colour, and the oldest fistula closed as well as the superior opening of the last abscess.

In January the only remnant of the disease was the inferior opening of the abscess, which was usually closed up by tubercular matter, and thus its cicatrization was impeded. The patient was now in the daily habit of taking carriage exercise. A second attack however occurred at this time; the hip again became swollen and painful, and two fistulæ re-opened. The iodine treatment was now carried to a still higher degree. This attack was but of short duration, and the new fistulous openings very speedily healed. During

the last month I accelerated the cicatrization by substituting the ointment of the proto-ioduret of mercury for that of the simple iodine, and by touching the fistulous ulcers at the same time with the rubefacient solution.

On the 1st of March, after six months' treatment, the limb had acquired all the characters of health; the cicatrices were firm and had reached the level of the surrounding skin. All medication was now omitted, and the patient returned to the management of his affairs.

I deem it necessary to offer a few remarks on the progress of this case. It has been seen that we have had two local exacerbations: one at the end of the second, another of the fifth month; despite of these secondary attacks the curative progress of the disease was not arrested in the slightest degree since it first set in under the influence of iodine. According to the light in which I view the two aggravations of the local symptoms now alluded to, I do not regard them as relapses of the original disease; but as salutary efforts of nature towards the resolution of the indurated cellular tissue, a resolution which could not take place except by the occurrence of local inflammation and by the expulsion of some fragments of tubercular matter. The local exacerbations were in fact a real effort at elimination caused by the attempts to void some remaining flakes of tubercular matter, or some minute purulent centres; an exertion preceded by the same symptoms which in other cases anticipate the discharge of scales of bone.

Disease of the Right Hip—Fistulous Abscess in the upper third of the Thigh—Chronic Abscess of the external Iliac Fossa—Marasmoid Fever—Colliquative Diarrhœa—Cure in Five Months.

Case XXI.—Jean Louis Guillaud, aged 19, of middle stature, but the nature of whose constitution was totally con-

cealed by the state of marasmus to which he was reduced, became a patient in my wards on the 18th February, 1830; he came thither from the surgical wards, where he had lain since the 4th of the same month.

When I saw him he was lying on his back, the thighs flexed on the pelvis, the legs on the thighs, and the heels pressed against the glutæi muscles. Since the month of September 1829 he had a large abscess in the upper and internal third of the thigh, and which was opened in the Hotel Dieu. A fistula has remained ever since. Immense quantities of pus flowed from the fistula on the least motion of the diseased limb. Another chronic abscess existed in the external iliac region, painful on every movement of the coxo-femoral articulation. There was abundant diarrhœa and involuntary dejections; he had besides two ulcers on the sacrum, and the lower extremity was anasarcous. The alvine dejections were of a purulent kind, and so abominably fetid that it was necessary to use the chloruret of soda to protect the adjoining patients from the nuisance. I should add that his state of emaciation was extreme.

From infancy this young man had been subject to chilblains, embarrassing the functions both of his hands and feet. He had also numerous tumours in the cervical regions, and obstinate fits of ophthalmia, which commenced with hordeola on the free edges of the eyelids. After the age of thirteen he was three times in a state of mental alienation; this always took place in summer. The first attack was the most violent and prolonged, and had for its chief character sleeplessness, alleged to be occasioned by a sensation of burning internal heat.

Guillaud's father died at 48 years of age, his mother died at 48 also, of the sequelæ of an erysipelatous attack. Finally, at the birth of our patient his mother suffered an invasion of epileptic paroxysms.

Guillaud was among the number of patients regarded as incurable whom I received at this period in order to avail myself of every opportunity of studying scrofulous diseases. I received him, as well as Cheron, Jarry, Macaire, and Vaillant, to have constantly before my eyes the most disastrous picture of the effects of this malady, and to be enabled to observe all the disorders which it may occasion before death. Of all these patients Vaillant alone is dead. The others survive, and afford living proof of what may be expected from iodine, even in the most desperate cases.

I ordered the fistulous canal to be injected thrice daily with the ioduretted solution, the parietes of the abscess to be rubbed, and the fistulous ulcer in the thigh to be dressed with the ointment of the proto-ioduret of mercury. Two dressings daily would not have been sufficient, on account of the profuseness of the suppuration. A month afterwards, I punctured the chronic abscess of the external iliac fossa on a level with, and a little external to, the great trochanter. More than a quart of pus was discharged. The treatment was the same as for the first abscess: injections, frictions, &c.

10th April.—The first fistula was dried up; the second, which I had myself made by puncturing the great abscess of the hip, was cured by the end of the same month. The digestive organs had regained their functions for two or three weeks; nutrition proceeded, and the patient's strength almost visibly increased.

18th April.—Hitherto the treatment had been but external; there now only remained one fistula, and that nearly healed; I placed the patient on the use of half a grain of iodine daily, and in fifteen days this quantity was increased to three quarters of a grain, which was continued for three months. I should have apprehended a relapse, had I at once suspended the use of iodine; it was therefore admi-

nistered internally, in order to complete and consolidate a cure already so advanced by the external medication.

10th May.—Still some contraction of the flexor muscles of the leg and thigh; he walked just like an S. The lower extremities were lank, but the knees very large; his complexion was also pale. I lost no time in causing him to remain out of bed, and I directed him to have two douches weekly on the knees. A month later, I omitted the vapour baths and substituted for them sulphureous baths, which have in many cases contributed not a little to strengthen the digestive organs, to re-excite the appetite, promote nutrition, and thus restore the entire economy.

28th October 1830.—This patient had been perfectly cured for four months when I presented him to MM. Dumeril and Magendie, Commissioners of the Academy of Science, on the 2d November. I also showed him to M. Larrey, who visited the Hôpital St. Louis in order to witness my experiments.

*Sequel of the preceding Case.**

30th November, 1830.—In three weeks Guillaud returned for a small boil and some soreness of the nose. Having obtained employment in the hospital, this affection was speedily relieved without any other treatment being adopted. The completeness of the original cure remained perfectly

* I have taken the liberty of abridging considerably the translation of the passage under this head in M. Lugol's Memoir. I have preserved only the practical facts, and omitted the accompanying observations, simply because the spirit of the descriptive language used by many medical writers in France and England differs so remarkably, that that which is perfectly appropriate, or even elegant in the former, will frequently, when translated into the latter, appear turgid and affected.—In the course of this work I have frequently felt obliged to follow the principle which guided me in the condensation of the present passage, and which a reference to the original will, I trust, sufficiently sanction.—Translator's Note.

unaffected by the slight symptoms now described, which were in no respect connected with scrofulous disease.

Spontaneous Luxation of the right Thigh—Symptomatic Abscesses—Discharged numerous Scales of Bone—Cure in Six Months.

Case XXII.—Jean Louis Mornon, herdsman, aged 18: his mother died young, and his father was in a state of habitual good health.

At 13, he suddenly experienced an intense pain referred to the right thigh, and which continued for a year, at the expiration of which it suddenly extended to the hip without quitting the knee. A chronic abscess soon supervened, at the under and superior third of the thigh. An incision having been made into this abscess it remained fistulous. Some years after the formation of this abscess when I interrogated Mornon concerning it, I found that fourteen scales of bone had been discharged through the fistulous opening; the first of the scales was an inch and a half long, and was of the diameter of a goose quill.

At 16, a second abscess occurred in the region of the great trochanter, a little less than its predecessor, and running the same course, with the exception that it never discharged pieces of bone.

A singular phenomenon was remarked in this case; namely, that on the occasion when the pain spread rapidly from the right knee to the left of the same side, the left arm became paralyzed, without pain, for a fortnight; this circumstance, however, did not again take place.

When our specific treatment was commenced, the actual state of the patient was as follows:—

Spontaneous luxation had taken place in the right thigh, with shortening of the limb for three inches and a half; the

great trochanter projected superiorly and anteriorly. There was lameness from the difficulty of resting the foot on the ground, the patient being only able to lean on its point, which, as well as the knee, was directed outwards. He complained of pain, referred to the hip, whence it was reflected to the groin, and thence to the knee. There were two fistulous tracts, one on the superior and inner third of the thigh, five inches in depth, apparently terminating at the anterior and inferior edge of the cotyloid cavity, and having three external orifices situated close to each other; the second fistula, the external orifice of which terminated beneath the great trochanter, was only an inch in depth. *

The general state of health of this poor patient may readily be imagined, when the hereditary nature of his disease, his exposure to debilitating causes, and the effects of a suppuration from a chronic abscess of four years' duration, symptomatic of caries of the coxo-femoral articulation, are severally taken into account.

4th June, 1828.—Iodine treatment, frictions on the parietes of the abscess, the fistulous ulcers to be dressed with the same ointment; to use the mineral water, and to have three sulphureous baths every week.

After six weeks of this method the fistulæ were very little better, but the pain in the hip and knee joints had decreased, he could support himself better on the diseased limb, and he was rather less crippled in his movements.

In two months the pain had totally ceased in the knee,

* It is to be presumed that these two fistulæ terminated internally at a common point; the probe, it is true, did not indicate this junction, which I deemed to exist solely from other pathological considerations. When I undertook the present case I was not in the habit of using iodine injections for fistulous sores, a method which in the sequel afforded me at the same time means of investigation as well as of cure. By these injections the most distant communications are detected, and a knowledge of their course and depth is with facility obtained.—*Author's note.*

and was diminished in the thigh; the fistulæ discharged less abundantly: that beneath the great trochanter was occasionally filled up by a little excrescence, which usually disappeared in three or four days. At this examination I continued the frictions with the ioduretted ointment No. 2, and I diminished the dose of iodine to half a grain daily, the first dose ($\frac{3}{4}$ daily), having caused four or five stools with griping in the mornings. It is deserving of attention, that it was powerfully diuretic the days on which it acted most feebly on the digestive canal. In four months and a half the fistula situated beneath the great trochanter was closed, that at the superior and internal part of the thigh afforded less pus, but it penetrated as deeply as ever; when up, he suffered still from the hip and knee; in bed, he experienced no pain but in the knee and fold of the groin.

On the 8th February, 1829, after eight months' treatment, there only remained one fistula, viz. that on the fold of the groin, still three inches in depth. His general health was improved; treatment suspended. On the 1st of April the treatment, both local and internal, was again resumed, and on the 28th July, 1829, the consolidation of the femur with the iliac fossa was recognised by MM. Magendie and Dumeril.

Caries of the Vertebræ—Lumbar Abscess—White Swelling of the right Arm, with four Fistulæ, one of which discharged six pieces of the Ulna—White Swelling and Exfoliation of the left Elbow, and of the left Knee—Extreme Marasmus.—Cure by Iodine in Six Months.

Case XXIII.—Francis Cheron, æt. 37, of small stature, had since childhood been harassed with scrofulous affections; in his infancy he laboured under tinea capitis; at 17 double ophthalmia, by which he was rendered blind for six months,

but which left no spots on his eyes; at 21 he was perfectly deaf for eight months, and when this suddenly disappeared, at 31, though he had enjoyed excellent health in the interval, the scrofulous diathesis reappeared; the cervical, submaxillary, and axillary regions, became quickly filled with tubercular swellings of a very large size, and lasting thirteen months, when they spontaneously disappeared, and were succeeded by an oppression of the chest, which compelled the patient to give up work.

After this thoracic affection intense hemicrania set in, lasted eleven months, and the hair fell off. At the same time (æt. 33) new tubercles showed themselves in the axillary spaces, and along the course of the vessels of the upper extremities. The patient, moreover, now first felt pain in the lumbar regions, the precursor of the participation of the osseous system in the general disease.

On admission into our wards four years later his condition was as follows:—

The two first lumbar vertebræ much swollen, with curvature of their spinous processes, and a large chronic abscess, on the external parietes of which were two fistulous sores, the traces of the application of moxæ. The ulcers thus produced kept open for two years, and a scale of bone had been discharged through each.

There was also enlargement of the bones of the right forearm, the lower half of which formed a fusiform tumour pierced with four fistulous apertures, through which six scales of the ulna had been discharged. Three times the amputation of this arm had been proposed, and constantly refused. The patient had also to regret his having been subjected to three mercurial courses, one at the Hotel Dieu, as a preparatory step to amputation; the second at the Hôpital Saint Louis, with the same view, although the patient never had a venereal affection.

The left arm less seriously affected than the right, presented nevertheless an enlargement of the lower extremities of the radius and ulna, and also a fistulous ulcer, through which a scale of the latter bone had exfoliated. The disease attacked the arms simultaneously six months after its invasion in the lumbar region.

The left knee was also involved in a white swelling of eleven months' standing, and its volume was nearly double that of the right; the leg was bent at an obtuse angle on the thigh, and the patient was unable to perform its further flexion or extension. The skin was altogether free from disease in this situation.

These different lesions, severe as they were, were aggravated by violent consecutive symptoms; there was profuse colliquative diarrhœa, the stools being frequently mixed with blood and pus; copious cold sweats, affecting solely the lower half of the trunk and the thighs; palpitations on the slightest motion of the patient; œdema of the lower extremities; debility so great that he was unable to stir from his bed.

He had been six months a patient in the surgical wards, where he was deemed incurable, when I received him as an example of the pathology of the disease. The ioduretted treatment was commenced in the usual manner, including the proto-ioduret of mercury on the 28th February, 1830. By the end of the second month the scrofulous disposition manifestly commenced to retrograde, and I now considered him convalescent; to be brief, his symptoms disappeared consecutively in the inverse order of their occurrence, and Cheron was cured by the end of August, after six months' use of the iodine preparations.

The use of the mineral water was continued for three months after, in order to corroborate the cure, and prevent the return of so manifold a disease.

ON THE EFFICACY OF EXERCISE IN CASES OF WHITE SWELLING OF THE FEET, KNEES, HIPS, &c.*

It is unnecessary to call attention to that part of the treatment in the preceding cases by which the ordinary doctrines and practice of medicine were contradicted—patients afflicted with white swelling of the ancle, knee, or hip joints, being directed to walk in the ward or open air during the entire course of the iodine treatment.

I may venture, nevertheless, to solicit the notice of practitioners to the results of my general experience, in which I never observed any accident or inconvenience to result from this innovation; of seventy-six scrofulous patients at present in my wards (30th April, 1831) there are thirty-two who, if treated according to the too general custom, would be restricted to absolute confinement to bed. Under my direction they walk daily in the hospital promenade, in the same manner as the different individuals afflicted with other forms of the malady.

The study of scrofula, as regards its causes and diagnosis, denotes that this disease has for its general character an original weakness which arrests the development of organs, but which renders them subsequently subject to a sudden and exaggerated increase. Rest has ever been regarded as a debilitating agent; it is the ordinary associate of all antiphlogistic systems of treatment. The most vigorous and robust constitution would inevitably be weakened, and brought to a state of etiolation by long-continued repose. If rest thus debilitates the vigorous, still more should an invalid, of pri-

* I have felt it necessary to condense this chapter considerably for similar reasons to those assigned in a previous note.—Translator.

mary weak constitution, be enfeebled by its operation, and his malady proportionately increased. *

But the matter is not one of argument alone; visit those patients confined to bed for six months, and on a debilitating regimen. They are pale, emaciated, weak, and depressed. I admit that the motion of a diseased joint is attended with some inconvenience, but the advantages derived from it are great beyond all proportion. In fine, for three years that I have followed this method, I have never been induced to change it, or even modify it, but for a transitory period in some unusual cases.

CASES IN WHICH IODINE HAS IMPROVED CONSIDERABLY THE CONDITION OF THE PATIENT, ALTHOUGH A PERFECT CURE COULD NOT BE EFFECTED.

After the numerous examples of success which we have given, it may be useful to add some cases of recovery, which, though not complete, are so far interesting, as the general health of the invalid was much improved. Cases of this kind deserve our serious attention, on account of the remarkable progress the disease had made up to a certain period of treatment. In many instances our most sanguine hope has been outstripped by the speedy advance of the disease to a cure which we were unable to render complete.

* M. Lugol will pardon me for remarking here, that I consider his facts much more conclusive than his arguments on the point in question. That exercise has effected much good in the cases before us I entertain no doubt; but that M. Lugol has satisfactorily accounted for the cause of the improvement I must be permitted to deny.—Translator's Note.

Tubercular Enlargements—Ulcerated Tubercle in the cervical Region—Caries, with Fistula of the malar and inferior maxillary Bones on the right Side—Imperfect Cure in Six Months.

Case XXIV.—Hippolyte Quellon, æt. 20, was submitted to treatment on the 1st of December 1829, labouring under the following symptoms:—

The right axilla was occupied by a scrofulous swelling; the upper portion of his chest and the sides and back of his neck were covered with scrofulous ulcers which discharged a large quantity of pus; there were also several red and irregular scars, many of which were concealed by encrusted matter. The left side of the face was marked by a large cicatrix, above which was found the base of a scrofulous deposit. The right side was disfigured by a hard and painful tumour of considerable size, occasioned by enlargement of the ramus and posterior half of the inferior maxillary bone and a part of the malar bone—two fistulous canals opened on the right cheek: one was placed at the root of the third molar tooth, and communicated with the carious bone; the second fistulous orifice pointed a little below the articulation of the lower jaw, which was in so painful and swollen a state, that the patient could not separate his jaws. He also suffered considerably from toothach, a circumstance depending perhaps on the diseased state of the inferior maxillary bone, in which the dental nerve is contained. These symptoms were accompanied by a copious salivation, which was very distressing, and produced much exhaustion.

1st Oct. 1829. Iodine employed both locally and internally. After six months the tumour in the axilla suppurated and disappeared; the cutaneous ulcers on the neck were perfectly healed, and covered by new skin as soon as they

closed. The fistulous openings dependent on caries of the maxillary bone closed after the discharge of the scales, and did not open again. The bone, however, still remained enlarged; the patient could not separate his jaws more than three lines; a further course of treatment continued for three months did not effect any improvement in the state of the bone or articulation: but in other respects the patient seemed to have perfectly recovered his health.

Ulcerated Tubercles of the Neck and Face—Caries of the left malar Bone, and of the body of the left inferior maxillary Bone—Rachitic Constitution—Cure of the Caries of the maxillary Bone in five Months—No Improvement in the Caries of the malar Bone.

Wilmakers, a glass-cutter, æt. 21, had never enjoyed a state of perfect health: at the age of 4, symptoms of rickets were developed, and the spinal column presented an anterior and posterior curvature when he submitted himself to medical treatment, on the 19th May 1829, for a variety of scrofulous affections. These I will describe in their order of appearance from the time of his reaching the age of 10 years.

In each sublingual region was situated a scrofulous ulcer, accompanied with remarkable alteration of the skin, which was red, swollen, and covered with crusty matter, more especially on the right side. On each side of the neck behind the angle of the lower jaw was a scrofulous swelling, as large as a full-sized hen's egg. There was an irregular ulcer of at least an inch diameter in front of the left ear on the parotid gland—caries of the left malar bone, accompanied by a fistula, and the left eye was frequently attacked by ophthalmia in consequence of the vicinity of the caries. Fifteen days

before his admission into the hospital, another fistula appeared over the body of the lower jaw, attended with extensive alteration of the skin, which had mortified for about an inch in extent. This cutaneous alteration connected the scrofulous ulcer near the ear with that occupying the sublingual region.

The whole of the left side of the face and the upper portion of the neck presented the appearance of an enormous swelling, which completely prevented the patient from opening his mouth; solid food could not be swallowed; and a severe pain in the affected part prevented sleep. Besides the ulcers of which I have spoken, the skin was extensively altered and red, increasing the disagreeable appearance produced by four ulcerated spots situate close to one another, one of which penetrated to the malar bone. Wilmakers was a man of small stature: his back was deformed; and his hair of a chesnut colour; his lips, nostrils, and eyelids, did not present that appearance of fulness which many authors describe as peculiar to scrofulous subjects, although by no means constant. A decayed state of all the teeth, caries of the malar bone, with curvature of the spinal column and deformity of the chest, announced a deep-seated ulceration of the osseous system in this individual. For a long time his respiration was short; and this affection of the lungs was increased since the preceding winter, when the patient had been weakened by several successive attacks of pulmonary catarrh. Percussion on the right side of the thorax produced a dull sound, and the respiratory bruit was also more weak on that side.

19th July, 1829. The two scrofulous ulcers of the neck were healed after a treatment continued for two months; they had previously furnished a considerable quantity of pus.

The tumour behind the angle of the left jaw remained ulcerated after a month's treatment. The left side of the cheek was considerably less swollen, and the skin had as-

sumed a better appearance. Motion of the jaws and mastication could now be effected; the general health was much improved. During these two months the local action of the iodine ointment was strongly marked; for two or three hours after its application the patient felt a burning sensation in the part, and each day on awaking he experienced an incontrollable desire to scratch himself: this irritation caused by the ointment was always accompanied by a copious discharge of pus. The pain of the fistulous sore over the malar bone was not relieved; and each morning the face was covered with pus discharged from this opening—for the first six weeks the ioduretted mineral water, given daily in a dose containing one grain of iodine, produced two or three liquid stools; afterwards the dejections were more consistent, but not diminished in frequency. The urine was secreted more abundantly than before the period of treatment: it was also thick in appearance.

23d August.—The patient was attacked by an access of rigors for three quarters of an hour, with shivering, succeeded by heat and sweating. On the fourth day the varicellous eruption came out, and passed through its several stages in a week; when the crusts had fallen off, I purged the patient twice. Under the influence of the eruption, the cicatrix in front of the ear gave way, and the sore underneath, as well as the tubercles behind the angle of the jaw and the eye of the same side, began to suppurate afresh. No alteration took place in the state of the caries of the malar bone, or of the cutaneous ulcer over the inferior maxillary bone.

15th September.—The local and general treatment with iodine was resumed; two scales from the body of the lower maxillary bone were discharged, and the fistulous orifice which gave passage to them closed in about fifteen days; the scrofulous ulcers on the neck and left cheek were also healed. The only trace of disease now remaining was the fistulous

sore of the malar bone; but this defied every mode of treatment: I tried in vain injections of iodine three times a day; iodine ointment of various strength; the rubefacient and caustic iodine. Several fragments of bone were discharged without producing any radical improvement, for the fistulous opening still remained at the expiration of a year, when every other symptom of scrofulous affection had been removed. In this case I persevered for too long a time in the application of iodine. It should have been discontinued before. When scrofulous ulcers and osseous affection of the inferior maxillary bone was cured, the same treatment might have been continued for a certain period (say two months) for the cure of the fistula of the malar bone. This object was not attained, and I should have deferred further application of the iodine to another season.

Wilmakers was discharged from the hospital on the 12th of February 1831: his general health was pretty well established, but I was unable to effect a cure of the caries of the molar bone, although the other scrofulous affections had yielded readily to the employment of iodine.

THREE CASES ILLUSTRATING THE APPLICATION OF IODINE IN PARTICULAR STATES OF VENEREAL AFFECTION.

It is frequently the custom amongst physicians to push too far the use of a remedy which has obtained striking success in the treatment of particular diseases. New indications arise when they are least expected, and the abuse of the remedy becomes the means of a reform in practice. I have always endeavoured to avoid this evil; I have neither overrated the utility of iodine in the treatment of scrofulous dis-

eases, nor have I abused the medicine by departing from that sphere in which experience had demonstrated its efficacy. General conclusions have never been substituted for established facts. How can we expect credit for simple assertions, or demand reliance to be placed on the truth of the cure of diseases, accompanied with extensive organic change, unless we have something more than the mere word of the physician to offer in its support. I have therefore so strictly confined the use of iodine to scrofulous affections, that I have perhaps in some instances omitted to employ the medicine for complaints analogous to scrofula in their nature. Those cases which I now proceed to give, seem to me to open another field for the useful employment of this new remedy. They are especially worthy of attention, as we had not recourse to the preparations of iodine until many other methods of treatment had been tried without success, or without at all retarding the frightful progress of the disease.

Extensive Ulceration resembling the Cancerous, and occupying the left side of the Face, the back part of the Neck, and the Scalp—Mercury employed, by which the Progress of the Ulcer was not arrested—Treatment with Iodine for Ten Weeks—Cure.

Case XXVI.—On the 24th March, 1829, a patient was brought into the Hôpital St. Louis in the lowest state of depression by a disease against which all the resources of art had been employed in vain for fifteen months.

It was an ulceration such as is seldom seen even in the Hospital of St. Louis. The ulcer occupied the lateral and posterior surfaces of the face and of the neck, on the left side. In the centre was the lobe of the ear, ragged, and in great part destroyed. The bottom of the ulcer was uneven,

presenting over the whole surface small mammary projections, and irregular depressions, filled with a greyish sanies, as fetid as that furnished by true cancer. The greater part of the ulcer was covered with grey-coloured, tenacious pus, excessively fetid: some points were sensible and bleeding, while in others we remarked a gangrenous cellular substance. The skin surrounding the ulcer seemed to have partaken of the same affection: it was red, and in some parts violet-coloured. The edge of the sore was very irregular, drawn in or everted; in many places portions of the skin hung loosely over the ulcerated and fungous elevations, which they covered without forming any adhesion with them. The form of the ulcer was nearly triangular; the anterior angle occupied the left side of the face, extending from the temporal fossa to the lobe of the ear. It was bounded, anteriorly, by an ulcerated tubercle on the centre of the chest, and behind, by the external cartilage of the ear, of which the helix, antihelix, and concha, were almost totally destroyed. The external auditory canal seemed as if it were sunk in a deep, sanious, and fetid excavation, which separated the ear from the cheek. The inferior angle was rounded off, and extended from the ulcerated lobe to the angle of the lower jaw. This portion of the sore was more recently formed than the others; its surface, less irregular and less excavated, was covered with a layer of greyish pus. The posterior and largest angle extended from the base of the external ear to the middle of the back part of the neck; the length was at least from four inches and a half to five; the appearance of this portion of the sore was disgusting: the surface was bleeding, deeply excavated, and turned outwards, with ragged prolongations of the skin, indicating the destructive progress of the disease. In addition to these, there was below the chin another round ulcerated spot, which seemed about to

unite, at the superior edge of the larynx, with a tubercle lately ulcerated.

The patient, an officer of cavalry, was 39 years old. From the age of 16, when he contracted his first venereal affection, he had been frequently attacked by successive disorders; and, indeed, never had been completely free from symptoms of syphilis. On the other hand, the family of the patient were never scrofulous: he himself had not shown any appearance of this complaint during his youth; and at present his constitution is pretty good, his skin dry and dark-coloured, and his stature moderate.

24th March, 1829.—Treatment with iodine morning and evening; friction with the ointment of the proto-ioduret of mercury; a grain of the proto-ioduret of mercury in two pills daily, one at night, the other at morning; with a pint of the decoc. sarsaparil. every day. The ulcer was completely cicatrised after ten weeks of this treatment. Two years have now elapsed, and it has not broken out again. The patient has come to see us frequently: we have examined him not a fortnight ago; the cicatrix was in every respect well formed, and free from incrustation.

Remarkable Case of Exostosis, Caries, and Marasmus—Compression of the Brain, in consequence of Caries of the scaly portion of the Temporal Bone—Mercury frequently tried—The disease only exasperated by the Oxide of Gold, which was employed three times—Cure by Iodine in Ten Weeks.

Case XXVII.—A young man, æt. 29, presented himself to me on the 26th of December, 1830, in the last stage of emaciation. His limbs appeared as if formed alone by bone, and the skin was elevated by exostosis; his voice was hoarse;

and he was afflicted with a cough similar to that which affects lepers; his appetite was totally lost; and the organs of digestion weakened by diarrhœa and frequent mucous discharges. The debility had proceeded to such an extent that the bare idea of motion distressed the patient; a discharge of reddish-coloured sanies, often bloody and very fetid, passed from both ears: the quantity of pus was so great as to require a change of dressing four or five times during the twenty-four hours. Small portions of bone were frequently found mixed with the pus; the mastoid process, on the right side, formed a considerable projection; the skin enveloping this tumour was red, and perforated by a fistulous opening, through which a probe could be passed to the denuded bone. Behind this fistulous opening there was a second orifice, through which we could readily inject a fluid into the external ear. On the left, the mastoid process, though less prominent than the other, presented the same appearance of disease, viz., discharge of pus from the meatus externus and fistulous opening, with a similar facility for the introduction of fluid from the orifice to the external ear: the patient was deaf in both ears.

Injection of fluid into these fistulous sinuses gave rise to the phenomena of cerebral compression, which we could produce at will. The first stroke of the piston of the syringe caused a sound perceptible to the patient, slight weakness, and a sense of dazzling. These phenomena led me to conclude that the squamous portion of the temporal bone was destroyed by caries; and that the injected fluid being applied immediately to the brain, gave rise to the symptoms of compression. The same phenomena took place under different circumstances: the patient was subject, while walking, to sudden attacks of vertigo; and to a sensation of dazzling, which he endeavoured to explain to us by saying that his eyes danced, and, after seeming to cross two or three times, reco-

vered their natural position. Whenever these symptoms occurred the patient was in imminent danger of falling, and was compelled to stop suddenly. Similar effects were also produced by any violent act of respiration, as coughing, sneezing, &c.; and were always more marked when the ears were filled with pus. From a comparison of these phenomena with those produced by the injection of fluid, I was led to conclude that both arose from pressure on the brain.

The patient, although not more than 29 years of age, resembled an old man in the decline of life. At the age of 15 he had injured his strength by premature indulgences; and a few years after he had been attacked by a recurrence of syphilis, which had not been materially relieved by any form of treatment. The whole osseous system was disfigured by exostoses, and his skin covered with pustules and frightful ulcerations. Mercury had been administered without any discretion; and, from a negligent employment of this remedy, the disease seemed rather to have been exasperated. After repeated trials of mercury for seven or eight years, in various military hospitals, the patient, at his own desire, was sent to Montpellier, where he went through a course of the oxide of gold. The use of this latter medicine revived the nodes, and with them a state of nervous irritability and watchfulness, which, on many occasions, plunged the patient in despair.

Such was the state of the patient when he came to Paris, in order to place himself under my care, and make a trial of iodine as a last resource. Not perceiving any indication of scrofula in the previous history of the disease, nor in the symptoms before me, I must confess I did not expect much advantage from iodine, and that I employed it more from a desire to satisfy the patient, than from any rational belief in the efficacy of the remedy. The patient himself presented no particular indication; he was intelligent, sharp, and courageous, and had sustained excesses which we know persons

of scrofulous constitutions cannot endure. However, he had some notion that his father was affected with syphilis at the time of his (the patient's) birth: he had also a sister who was weak and pale, the mother of a small, debilitated child, with scrofulous enlargement of its mesenteric glands. Another sister, whom I had not seen, partook of a similar temperament, and had been mother of a weakly family of children.

From these collateral indications (which often serve as a diagnosis) I was induced to make a trial of iodine, which I commenced on the 27th of December 1830, under the form of ioduretted mineral water; injections of a solution of iodine, morning and evening, into the fistulous sinuses; friction of iodine ointment over the nodes; and baths impregnated with iodine. The patient, however, was unable to bear friction with the iodine ointment, or with that of the proto-ioduret of mercury. I had not continued this treatment more than a fortnight, when the patient's appetite was restored, and the diarrhœa suppressed; encouraged by these favourable symptoms he now attended to the state of his health, and frequently took carriage exercise. Early in February he was able to walk nearly the whole day; his limbs had acquired some bulk; his appetite improved; and the nodes, together with the pains in the bones, had almost entirely disappeared. The internal administration of iodine was carried as far as a grain daily; he took four ioduretted baths during the week, and he continued to inject the solution of iodine into the fistulous sores twice each day.

Towards the end of February I found my patient considerably better after each visit; the discharge of pus from the ears was much diminished. The right mastoid process had nearly returned to its natural size; he was now able to perceive the ticking of a watch, and to derive some enjoyment from Italian music.

12th March.—The nodes completely removed, the fistulous orifices not altogether closed; but for the last fortnight the discharge from them has been trifling, the injection does not penetrate with the same facility as formerly, and on some days seems arrested; for a considerable period of time they have ceased to produce symptoms of compression of the brain, and the patient is no longer attacked with vertigo, &c. while walking. The power of hearing is nearly restored; of his appetite, general strength, and sleep, he has nothing to complain; he is now able to walk about the whole day without fatigue, although he carries with him a cane containing a gun, of nine pounds' weight; this he takes alternately in either hand, that his arms may be strengthened by the exercise. Such was the state of Mr. —— when his duty as captain of artillery called him off to Guadaloupe.

Large Tumours, with Ulceration of the Skin, in the right cervical and inguinal regions, and in a lesser degree in the left side of the Neck and Groin—General Emaciation—Iodine employed for twelve weeks—Cure very far advanced.

Case XXVIII.—On the 20th of February of the present year I was consulted by a young patient, of dark complexion and tall stature, who was reduced to such a state of weakness and emaciation that he was barely able to sustain the fatigue of travelling to me in a carriage. For the last eighteen months a large tumour had formed on the lateral and back part of the neck, extending thence to the lobe of the ear; the skin covering this tumour was extensively diseased, and seemed on the point of sloughing. In the groin of the same side I found another tumour larger than the clenched hand, of irregular form, and marked along the centre by an ill-

conditioned cicatrix. The integument of this part was still more changed in appearance, and abraded in several places, from which a small quantity of pus was secreted. The neck and groin on the left side were similarly affected, but in a lesser degree. The general health of the patient had suffered from the local disease; his rest and appetite were gone; and medical assistance had been frequently sought without any resulting benefit.

This case presented numerous obstacles to the formation of a correct diagnosis; the patient's constitution was strong; his whole family enjoyed perfect health, and in none of its branches had ever suffered from pulmonary consumption. He himself, now 29 years of age, was affected with syphilis only once at the age of 18, and since then had not been exposed to the influence of those causes which, according to some writers, generate scrofulous diseases. This case bears a strong resemblance to the first one which I have related in the present Chapter. If the tumour on the neck had suppurated, it would have formed an ulcer just as extensive and ill-conditioned. The same observation applies to the state of the groin. The following is a summary of the treatment employed:—Frictions over the tumour with the ointment of the proto-ioduret of mercury; six drops, twice a day, of the iodurettted water, in half an ounce of eau sucrée; hydro-sulphuretted baths.

5th of March.—Appetite has returned; the patient is now able to come to my house on foot; and has continued to pay all subsequent visits in the same manner.

15th March.—The tumours in the groin and neck are diminished by one-half. The iodine has evidently made an impression on the disease; on this account I increased the strength of the ointment, and of the iodurettted water, and substituted iodine for the hydro-sulphuretted baths.

At the beginning of April the patient was enabled to resume his ordinary occupations and course of life, but still continued the remedies.

Since the 10th of April I have not seen him; this I regret the more, as he had promised to furnish me with a written history of his complaint.

CHAPTER III.

ON THE MODE OF PRESCRIBING THE PREPARATIONS OF IODINE.

I PROCEED to an analytic view of the preparations of iodine alluded to in the preceding cases. I shall divide them into two sections: the first comprising all those formulæ in which the remedy is prescribed for internal use; the second section will contain an account of all those intended for external application.

INTERNAL TREATMENT.

In my first Memoir (see pp. 10, 11) I have advanced my reasons for opposing the use of the tincture and syrop of iodine; I have shown that in both these modes of compounding the remedy the iodine was precipitated on the parietes of the stomach, and that in order to prevent the corrosive action which might ensue I deemed it advisable to give the remedy in solution in distilled water.

I was at the same time aware that though this solution was a superior mode of giving the remedy internally, yet that the scanty solubility of the iodine and the large quantity of water consequently required as a vehicle for small proportions of the active substance were considerable objections to its use. Experience also taught me another inconvenience

in the aqueous solution; namely, that in a few days it loses its colour, especially when exposed to the light, which converts the greater part of the iodine into hydriodic acid. Part of its activity is thus lost, and its uniformity of therapeutic action much impaired.

The experiments which were first made to find the exact composition of iodurettted baths, directed me also to the most certain and least inconvenient method of prescribing iodine for internal use; viz. by dissolving the iodine in a solution of potash. I have therefore for a considerable period abandoned the use of the aqueous solution mentioned in the first Memoir. I subjoin a tabular view of the constitution of the solutions I am now in the habit of administering, graduated in three different proportions, so that the iodine may be given internally in the progressive dose of half a grain, three-fourths of a grain, or four-fifths of a grain daily.

IODURETTED MINERAL WATER.

	No. 1.	No. 2.	No. 3.
℞ Iodine.....	gr. ¾ ..	gr. i ..	gr. 1¼
Hydriodate of potash	gr. 1½ ..	gr. ij ..	gr. ij ½
Distilled water.....	℥ viii ..	℥ viii ..	℥ viii

This solution is perfectly transparent, of a beautiful orange colour, and keeps for a considerable time. Children drink it readily when it is mixed with a little sugar, but this addition should only be made at the moment of the administration of the medicine, as in the course of a few hours after sugar is added, decomposition takes place, the liquid becomes colourless, and its activity is partly destroyed.

I commence the internal treatment with half a grain of iodine; for this proportion I prescribe two-thirds of the mineral water No. 1. In the second fortnight I gave the entire of this number; that is, three-fourths of a grain daily,

varying the dose within narrow limits according to the peculiarities of the case. During the fourth fortnight, or in the beginning of the fifth, I give a grain daily, and usually I continue this quantity to the end of the treatment. In some cases I have prescribed one grain and a quarter; still more rarely I have increased the dose to a grain and a half, but I have never gone beyond this quantity daily.

Another and advantageous form of preparing this mineral water on a larger scale is, by first making a concentrated solution of iodine in hydriodate of potash, and then diluting it with a sufficient proportion of water; thus,

℞ Iodine ..... ℈ i
Hydriodate of potash ... ℈ ii
Distilled water ..... ʒ vii.

This solution contains one twenty-fourth of iodine; poured into sixteen pounds of distilled water, it forms thirty-two bottles of eight ounces of the mineral water No. 1. It is easy to understand that by diminishing the distilled water one-fourth we compose No. 2, and by using three-fifths of the quantity of water we obtain No. 3.

Again, the concentrated solution now used serves for the administration of the remedy in drops once or twice daily, a mode of prescribing I frequently follow in my private practice. I commence by six drops given in the morning fasting, and six in the afternoon an hour before dinner, in half a glass of water flavoured with sugar. Every week the daily dose is increased by two drops until it shall have reached thirty, or even thirty-six drops daily.

For children under seven years old I would recommend two drops twice daily for the commencement, to be increased gradually to five drops twice a day, morning and evening.

From seven to fourteen years of age I seldom order more

than sixteen drops daily; I should not deem it prudent to exceed that quantity.

I cannot point out more particularly the graduation of the doses according to the age of the patients. The ordinary laws of therapeutics must guide us in this respect. It will not be forgotten that childhood, youth, and adolescence, are severally marked by different periods, according to which the treatment of diseases must undergo modification.

The employment of the last form of the iodureted solution, viz. in concentrated drops diluted with water, is not quite so precise as the first; economy, portability, and other considerations, will, however, in many cases, induce us to overlook this consideration. Where these circumstances do not intervene, I prefer the first formula, from its superior exactitude, and consequently greater safety. As to the intervals between the doses, I think it is of much consequence that they should be especially attended to. I usually give one-half the daily quantity in the morning fasting, the second in the afternoon an hour before dinner. In certain cases I divide it into three parts, and give two-thirds at an interval of an hour between each in the morning fasting, and the last third in the afternoon in the usual way. This subdivision appears to me to be that far best calculated to ensure the absorption of the iodine by the digestive surfaces. Given in greater quantities at once, the iodine passes off so speedily by the kidneys that it can scarcely exert any therapeutic effect in the diseases in question. So powerful is its diuretic action that I have administered it in cases of abdominal dropsy with much success.

The mineral water may be sweetened according to the taste of the patient; I usually employ for this purpose syrop of coltsfoot (*tussilago farfara*), or of marsh-mallows (*althea officinalis*).

Should constipation supervene during the employment of

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iodine, I either act upon the bowels by calomel pills, persevering in the iodine, or I discontinue the latter for a few days, and in the interval give purgative doses of manna, Seidlitz water, &c. &c.

EXTERNAL, LOCAL, AND GENERAL TREATMENT.

External treatment may be either local or general. By the first I mean the application of iodine to ophthalmia, ulcers, tubercles, &c.; by the second, the entire immersion of the body in an iodurettted solution. In neither case can the external treatment be regarded as topical alone, or as modifying only the parts with which it comes in contact. In all cases a secondary action is exerted by means of cutaneous absorption, so that the remedy eventually fulfils the double purpose of internal and external treatment.

As the local action is, however, more distinct with some preparations, I shall discuss the external treatment under two heads: 1. The external and local; 2. The external and general applications.

§ I.—EXTERNAL LOCAL TREATMENT.

1.—*Iodurettted Ointment.*

I have made no change in the composition for this preparation, given in the first Part (see page 14), with the exception of diminishing the quantity of iodine in No. 1, in order to render it more suitable to some patients of peculiarly sensible skin. The formula therefore now stands as follows:—

℞ Iodine ..... gr. xii.
Hydriodate of potash .... ℈ iv.
Fresh lard ..... ʒ ii.

These ointments lose their colour in a certain time, especially when exposed to the air, perhaps from the volatilization of part of their iodine; it is consequently essential that the ointments should be prepared fresh when required.

The uses of this ointment may be sufficiently collected from the numerous cases in which its employment is mentioned in the first and third parts of this treatise. It is necessary to observe here, that large tubercles frequently recede under the use of this ointment, by an internal action, independently of suppuration.*

2.—*Ointment of the Proto-ioduret of Mercury.* †

The following formulæ express the quantities of the ingredients in the several strengths of the ointment which I am in the habit of prescribing.

℞						
	Proto-ioduret of mercury..	ʒ ii.	..	ʒ iii.	..	ʒ iv.
	Fresh lard.....	℥ ii.	..	℥ ii.	..	℥ ii.

This ointment is, when properly prepared, of a canary yellow colour; sometimes it presents a dead green tint, which is owing to the presence of some protoxide of the metal. At other times its colour approaches to the orange, from the deuto-ioduret being formed. The latter admixture must be carefully avoided, the deuto-ioduret of mercury being nearly as escharotic a preparation as the deuto-chloruret or corrosive sublimate.

The syphilitic aspect of the esthiomenic form of scrofula first led me to use this compound, and the good effects I ex-

* I have omitted two or three comparatively unimportant cases which M. Lugol adduces in this place in proof of the above observation.—TRANSLATOR.

† For the mode of preparing the ioduret of mercury, see Appendix.

perienced from its application induced me to extend its use to all cases of external scrofulous disease. We may observe incidentally, that many forms of scrofula imitate syphilitic diseases, and that syphilitic parents not unfrequently engender scrofulous children.

This ointment has also the advantage of causing little or no local pain in ordinary cases; sometimes, but rarely, it is true that it occasions quite as intense and permanent smarting as the ointment of the simple iodine alone.

3.—*Solution of Iodine for external use.*

In my first memoir I only mentioned one solution intended for external use, but similar reasons to those which induced me to change the formula for internal doses, have led to the use of the subjoined solutions, which are at the same time more permanent in their constitution, and uniform in their effects.

	No. 1.	No. 2.	No. 3.
℞ Iodine	gr. ij.	gr. iij.	gr. iv.
Hydriodate of potash..	gr. iv.	gr. vi.	gr. viii.
Distilled water	lbj.	lbj.	lbj.

Injections may be made on the conjunctiva and the lacrymal passages with the solution; also in cases of coryza or ozœna it should be used several times a day, and is best applied by means of a syringe. In injections of the nasal fossæ care should be taken not to direct too much of the solution towards the internal fauces.

The same injections should be used in fistulous tracts. The remedy is here doubly valuable by coming in contact with the diseased surfaces, and by affording us a means of tracing the course and extent of the fistulæ with more certainty than we can obtain by probes or other instrumental

examinations. The utility of these injections in cases of fistulous abscesses will be rendered more striking by the following example.

On the 25th November, 1830, my friend M. Chervin brought for my opinion a lady and her son, æt. 15, and who had been scrofulous for more than ten years. We found spontaneous luxation of the hip joint, and the head of the femur consolidated to the ilium, with shortening of the limb, which was in a state of extreme emaciation. There were three fistulæ in the left groin, and a fourth midway between the superior posterior spine of the os ilii and the corresponding lumbar vertebra: before the tuberosity of the ischium there was a fifth.

Each of these fistulæ having been probed, we scarcely penetrated more than an inch and a half. How feeble an idea could thus be formed of the magnitude of the disease will be understood by the fact, that an iodurettted injection made through one of the fistulous apertures in the right groin, passed out through the lumbar and ischiatic fistulæ, and *vice versa*.

In this case the sanatory effects of the local application of iodine were as great as could be expected, and by the end of April the patient was in a state of manifest recovery.

4.—*Rubefacient Solution of Iodine.*

℞ Iodine..... ʒ iv.
Hydriodate of potash ..... ʒ i.
Distilled water ..... ℥ vi.

The solution should be kept in a bottle with a glass stopper, as it rapidly corrodes corks.

This solution is very useful in cases where scrofulous surfaces require stronger excitement than usual, for example, to the eyelids and angles of the eyes in obstinate chronic oph-

thalmia, in coryza, or other forms of scrofulous disease in the nasal fossæ. It is most conveniently applied by means of pledgets of fine charpie. Even after a cure I have frequently applied this solution to the deformed cicatrices characteristic of this disease, and it usually renders them smoother, less prominent and livid.

The rubefacient solution may also serve two other important purposes, namely, the preparation of local baths and iodurettted poultices.

5.—*Local Iodurettted Baths.*

Local baths for the hands, arms, feet, chin, &c., may be readily prepared, by adding the preceding solution to a sufficient quantity of warm water, consulting the sensations of the patient as to the quantity of the solution to be employed. It should not be forgotten that *wooden* boxes should be employed to contain the solution, lest the presence of any metal in the vessel should alter the properties of the bath.

Case XXIX.— ——— Marigny, æt. 14, had already undergone amputation of his right ring-finger, when he was admitted into the Hôpital St. Louis for caries of several bones. There was caries of the two first phalanges of the left ring-finger, with fistulous tracts, and a deep alteration of the skin. The back of the left-hand was similarly affected, there being four fistulæ running to the metacarpal bones; which, for the most part, were hypertrophied, and carious in several places. An inch above the styloid process of the radius there was an ulcer an inch in circumference, which had suppurated, and was now forming crusts.

After three months' iodine treatment these affections were

in a state of advanced convalescence. An ophthalmia and coryza, which also existed at the commencement of the course, were perfectly cured.

A short time after, all the other parts still retaining the benefit of the iodine, the ulcer on the arm opened afresh, increased in size, and showed a most unfavourable aspect. The iodine ointment, solution, or even the caustic iodine, exerted no action on this sore: a local bath, however, in two months effected a cure. This was the first time I tried the local bathing; and the success of the experiment induced me to extend the method in every case where the shape of the parts would permit its application.

6.—*Ioduretted Cataplasms.*

The rubefacient solution may be applied in another form, viz., in admixture with cataplasms of linseed meal. To prepare the mixture, the poultice is first made in the ordinary manner; and when moderately cool, a sufficient quantity of the rubefacient liquid is poured on it with a wooden measure.

I employ this application in some cases of very hard tubercular tumours, which obstinately resist all other means of treatment. The cataplasm is, however, only used after frictions, or dressings with the iodine ointment. The falling off of crusts from esthiomenic surfaces is also much accelerated by these cataplasms The subjacent surfaces being thus exposed without laceration, they more speedily become affected by other local applications.

The cysts termed "cold abscesses" I usually puncture; and after their evacuation I have them injected with an ioduretted solution twice or thrice daily. After the injection the parietes of the cyst are rubbed with an ointment of

iodine, or of the proto-ioduret of mercury; and subsequently a cataplasm is applied, as hot as the patient can bear it.

7.—*Caustic Iodine.*

The most concentrated solution of iodine which can be prepared is composed of one part of water, one part of the hydriodate of potash, and one part and a half of iodine. This solution contains in all eighteen parts of iodine to twenty-eight of liquid. When it is diluted with water, the solubility of the iodine diminishes so rapidly that the hydriodate of potash dissolved in twice its weight of water cannot take up more than its own weight of iodine: when four times as much water as hydriodate of potash is employed, the latter will only dissolve three-fourths of its own weight.

The following proportions may, for these different reasons, be advantageously adopted:

℞ Iodine..... ʒi.
Hydriodate of potash ʒi.
Distilled water .... ʒij.

I have denominated this solution the "*caustic iodine,*" because it induces small scars on the parts where it touches, formed by the chemical union of the iodine with the skin. The scars produced by the fused nitrate of silver, by the acid pernitrate of mercury, are of the same nature.

This *caustic* iodine only differs from the ioduretted solution in its greater degree of force. I employ it when the first formula has either totally failed, or been found to be insufficient in its action. In many cases it is more successful than frictions; and in all it may be advantageously associated with them. I have used it repeatedly for touching the eyelids and nasal fossæ, to repress excessive granulations, to

modify the state of the red, hypertrophied skin, impregnated with pus, surrounding certain scrofulous ulcers and tubercles. The celerity, in short, with which it improves the appearance of the soft and fungous tissues in these cases almost surpasses imagination: sometimes, indeed, the ulcers are healed too soon; that is, closing before a sufficient change is worked on the general constitution. In the esthiomenic scrofula the pustules are touched with the caustic iodine, the rubefacient solution having been used a short time previously. The application may be made twice or thrice a week, sometimes even daily, when the surfaces are extensive, and can only be touched in minute portions at a time.

Such are the formulæ of which the external and local treatment is composed. They are numerous, no doubt, but there is not one without its special case; and one, namely the rubefacient solution, fulfils the triple purpose of serving for the local baths and cataplasms, besides being used by itself.

Case XXX.—My colleague, M. Thouvenet, deputy for La Meurthe, sent me a young lad, æt. 12, whose jaw was involved in the esthiomenic form of scrofula to the extent of a six-franc piece. The surface of the affected part was red, indurated, and studded with three groups of ulcerated pustules, one on the central portion of the malar bone, the second on a level with the anterior and inferior angle of that bone, the third opposite the eye-tooth. The entire was covered with a common crust, of a greenish colour and unequal thickness.

The child has now been six weeks under treatment, and during that time I have done nothing but touch the diseased parts with a pledget of charpie steeped in the rubefacient solution. Before this remedy was used, greenish crusts more than a line in thickness were constantly in the process of formation,

at present there are only a few delicate scales, and the subjacent ulcers are not so deep or soft. The surface of the sore is moreover diminished nearly two-thirds.

In order to apply the solution to the diseased parts, I first carefully detach the scales with a little spatula, and occasionally I have recourse to an iodureted poultice for the same purpose. When the minute ulcers are thus set at liberty, I touch them with the rubefacient solution. In the present case the application still causes much pain, although the cure is very advanced (1st May, 1831). It is the first time that the local effects of the iodine have been so long felt after the commencement of convalescence.

However carefully I have made known the medicinal preparations which have served for my experiments on iodine, as well as the mode of application of each to the particular form of the disease in which it is of service, I am, nevertheless, far from having given all the details which spring from individual cases, and which are afforded by the minute diagnosis of symptoms among a great number of patients.

It is the profound study of the diagnosis of these symptoms that renders treatment effectual and swift in its results. It is under this point of view that I confidently predict success to those who adopt my mode of practice. The remedy is found, and the refractory cases owe less perhaps of their obstinate progress to the nature of the disease, than to the imperfect mode of application of the appropriate medicine.

I shall conclude my observations on the present part of the subject with a remark which appears to me to illustrate the relation which seems to exist between iodine and the germ or principle of scrofula. I have shown in the first part of the Memoir that the local action of iodine, as far as regards the

pain and irritation of the part, acute as it is during the course of treatment, diminishes in proportion to the progress of the cure, and even ceases after the sanative effects of the application have been completed. I have observed this fact so frequently, that I have no hesitation in declaring it to be of general occurrence. The following example will place it before the reader in a still more striking position :—

I was called upon by my friend M. Lisfranc to see a young lady æt. 22, who, since her infancy, had laboured under scrofulous affections. After obstinate ophthalmia and chilblains of frequent recurrence, two tubercular tumours, larger than an orange, occurred on both sides of the neck; there was also a tubercular ulcer of very bad aspect on the right cheek anterior to the ear. The general state of her constitution it is unnecessary to describe.

The treatment was commenced on the 5th May, 1830, and was continued but for two months. The local action of the iodine was very acute, lasting two or three hours each time; but by the end of the second month the application produced no such effect. On the 10th January, 1831, I resumed the treatment, the right side of the neck, and the cheek of the same side, had been, at that time, cured for two months, and the left side was in an advanced state of convalescence.

Besides the frictions with the iodurettted ointment, I touched the tubercular tumours once or twice weekly with the concentrated solution of iodine, and great local excitement was thus occasioned. I gradually increased the strength of the application, and I now (30th April, 1831) use the caustic preparation. Intense smarting is produced on the left side of the neck, which is still diseased. On the right side, which has been cured for two months, no local pain or irritation whatever is occasioned.

§ II.—EXTERNAL GENERAL TREATMENT.

Iodurettted Baths.

The section of M. Lugol's memoir, which corresponds to this head, contains nothing more than a condensed statement of the practical conclusions to be drawn from his experimental inquiries on the mode of action and proper composition of iodurettted baths, published, it will be remembered, in a separate form in 1830. Having given an ample version of that essay in the preceding pages, it is of course unnecessary to revert here to the matter it embraces. I subjoin the valuable table of the comparative proportions of the several ingredients to be used in iodurettted baths for children and adults, calculated according to the ages of the patient and the capacity of the bathing reservoir. The form of this table I have completely altered, and, I trust, rendered more intelligible. I have already hinted, that from M. Lugol's using the poids de marc, or old French scale of weights, in his calculations, a strict numerical version of his formula into the troy numbers would, in many cases, be extremely unadvisable, since, from the fractional numbers which should be introduced, the greatest perplexity and confusion in prescriptions would necessarily be incurred. In the following table the baths for children are in strict accordance with M. Lugol's numbers, as far as the iodine and hydriodate of potash are concerned, a circumstance which depends on M. Lugol having employed the "scruple" as his form of measurement, a quantity which admits of version into troy weight without the formation of fractions. The baths for adults, however, contain gr. 0,93 of iodine, and of hydriodate of potash per drachm more than M. Lugol directs, because that author having used the "gros" in his formula, it was impossible to render it into

whole troy numbers, the "gros" (poids de marc) being equivalent to 59,07 grs. troy. That no therapeutic disadvantage will be occasioned by the alteration I feel perfectly satisfied; while the greater facility in prescribing afforded by the simple numbers will be admitted to be an object of much importance.—TRANSLATOR.

Tabular View of the Proportions of Iodine and Hydriodate of Potash and Water in Baths, for Children and Adults.*

BATHS FOR CHILDREN.			
Age.	Water. Quarts.	Iodine. Troy grains.	Hydriodate of Potash. Troy grains.
4 to 7	36	30 to 36	60 to 72
7 to 11	75	48..60..72	96..120..144
11 to 14	125	72..96	144..192
BATHS FOR ADULTS.			
Degree.	Water. Quarts.	Iodine. Drachms Troy.	Hydriodate of Potash. Drachms Troy.
No. 1	200	2 to 2½	4 to 5
No. 2	240	2..2½..3	4..5..6
No. 3	300	3..3½	6..7

* The ioduretted baths have not yet been systematically introduced into the Hôpital St. Louis; until they can be permanently established, the hospital patients are treated with the sulphureous baths.—TRANSLATOR.

APPENDIX

BY THE TRANSLATOR.

The enthusiastic reception which M. Lugol's researches on iodine obtained from the most eminent of the Parisian medical journals, quickly induced a great number of practitioners to follow up his inquiries with equal ardour and assiduity. I have, consequently, made a selection from the French periodicals of the cases published within the last six months. The chief value of some of these consists in the corroboration they afford M. Lugol's opinions; others again are possessed of additional interest from the novel and apparently efficacious combinations of the remedy with other powerful therapeutic agents.

The chemical history of the compounds of iodine has also received some extremely curious and important additions, almost at the same moment that a new field was opened for therapeutic investigation in their application to the treatment of disease. I allude especially to M. Caventon's beautiful discovery of the solubility of the ioduret of lead in boiling water, and its subsequent deposition from its solution in exquisitely beautiful crystals. It is rather a

curious coincidence that this discovery should have occurred almost at the same moment that MM. Cottereau and Verdet de Lisle conceived the idea of using this compound in the treatment of scrofulous diseases.

I shall therefore divide this Appendix into two sections. In the first I shall consecutively lay before my readers a succinct analysis of cases treated either with simple iodine or hydriodate of potash, or with iodine and opium—some with the ioduret of mercury, and others with the ioduret of lead. In the second section I shall describe at sufficient length—1st, the principal chemical properties of iodine, the hydriodate of potash, and the metallic iodurets just mentioned; and, 2nd, the methods by which the purity of any specimen of these remedies may be ascertained, including an account of the adulterations to which they are commonly subjected.

CASES OF SCROFULA SUCCESSFULLY TREATED WITH VARIOUS PREPARATIONS OF IODINE.

1.—CASES TREATED PRINCIPALLY WITH IODINE AND THE HYDRIODATE OF POTASH.

Dr. Bermond, a distinguished physician at Bourdeaux, has published, in a recent number of the memoirs of the Medical Society of that city, several cases of scrofulous maladies treated successfully with iodine. These cases deserve much attention, from the extreme caution which evidently influenced their publication, and from the fact of most of them having resisted the ordinary modes of treatment. The fourth case constitutes, I think, one of the most convincing examples of the efficacy of iodine I ever met with; and it, moreover, remarkably confirms M. Lugol's opinion that,

when prudently administered, this remedy, so far from inducing, is not even contra-indicated by the existence of certain thoracic diseases.

The first was a case of enlarged testicle, originally dependent on a venereal cause. Not the least diminution, however, was occasioned by energetic anti-syphilitic treatment. The swelling yielded completely to local frictions with iodine, in one month.

The second case was one of scrofulous ophthalmia, of six years' duration, in a patient æt. 20, of moderately robust but lymphatic constitution, and who was in vain treated with various local applications; amongst which may be enumerated the insufflation of calomel, tutty, and sugarcandy. An eye-wash, containing iodine and opium, was resorted to, according to the annexed prescription:

℞ Tincture of iodine.. 30 drops.
Laudanum..... 36 do.
Distilled water.... 4 oz.

In six weeks the symptoms were entirely dissipated; and no relapse has taken place since 1829; which is particularly worthy of attention, from the frequency with which the attacks previously recurred.

The third case was one of scrofulous ulcers in the cervical glands, in a young girl, æt. 10; and which, despite of various methods of treatment, had lasted for three years. There were also numerous enlarged glands on the surface of the body, in the axillæ, at the inner part of the arm, and in the groins: some of these were ulcerated. In the neck there were three ulcers in the parotid regions.

M. Bermond prescribed a grain of iodine, to be dissolved in a bottle of water, to which two drachms of muriate of soda were to be added. The little patient took two wine-glasses full of this mixture daily. Frictions, with the ioduretted hydriodate of potash,

were performed on the tumours; and the ulcers were similarly dressed. In fifteen days the cervical ulcers were healed, with very trifling excavation. The ulcer in the fold of the groin, owing to the movements of the limb, resisted the treatment for six weeks.

The fourth case is by far the most important; and I shall accordingly insert it in the author's own words:

"The son of M. —— D., æt. 11, while playing with his school-fellows, received a blow on a very small tubercle, placed beneath the horizontal ramus of the lower jaw. Eight days after the accident this tubercle began to swell, and a small sub-maxillary gland, at the same side, also became enlarged. Emollient cataplasms were used, but the tumours continued to increase, and in a short time had acquired very considerable bulk. It was at this time that my attendance was desired (22d August). The patient, when examined at that time, presented many characters of the lymphatic constitution. He was moderate in stature, and well shaped, and up to the actual attack enjoyed good health. The two principal tumours were now tense, and imparted the sense of fluctuation: the superjacent integuments were thinned, rosy, and rather creased or wrinkled in the most fluctuating part. I advised their puncture; and lest the necessary opening should leave a deformed face, I decided on making the opening within the mouth, where the tumour projected sufficiently, and felt soft. An incision an inch long having been made, a quantity of white, grumous, tubercular matter was discharged, along with a great deal of blood. The abscess was nearly emptied, and then filled with charpie. The sub-maxillary abscess was also freely opened, and allowed the escape of a similar, but less consistent substance. Charpie was also introduced in the second cavity, and an emollient poultice was applied over the neck and jaw.

"The next day sedative injections were made into the cavities, and the charpie and poultices were renewed. As much pain was felt, and inflammation occurred, setting in in the adjacent parts, fifteen leeches were applied to the lower part of the neck: laxative

diluents and injections were also prescribed, in order to remedy slight constipation.

" By the eighth dressing the excavations had much diminished, by the contraction of the surrounding and elevation of the subjacent parts: the upper abscess, especially, no longer admitted the charpie. I ordered a gargle of the chloruret of soda, dissolved in ten parts of aromatic water; and the same solution was applied externally to the sub-maxillary excavation. Suitable internal remedies were also administered.

" By the thirtieth day the abscess inside the mouth was perfectly healed, leaving but a very slight degree of induration. The corresponding skin of the jaw still retained the same degree of redness, was thin, and slightly fluctuating to the touch. An external incision was proposed, but objected to by the patient and his mother. Two days later the abscess burst spontaneously, in numerous minute apertures, and discharged a whitish purulent fluid, containing flakes of grumous matter, by which the openings were frequently closed up. The cavity of the sub-maxillary abcess had by this time completely disappeared; but its edges were separated and everted; and, in the centre, the swollen base of the ulcer protruded. Dressings with charpie and simple cerate were applied.

" Ten days after, (the fortieth day,) matters were exactly in the same state. I cauterized the sub-maxillary ulcer with fused nitrate of silver; and I divided the integuments wherever sinuses were formed. The same dressing was continued; and as the parotid gland was rather swelled, mercurial frictions were resorted to over its surface.

" On the fifty-fifth day the child was attacked by intense bronchitis, which was treated by the reiterated application of leeches on the chest, by diluents and sedative medicines. On the fifth day signs of resolution of the inflammation were observable: the sputa became abundant and thick, and of a greenish colour, streaked with white: the stethoscope indicated the respiratory sound and a full mucous rattle in the large bronchial tubes. A cautery was applied to the arm, and oxymel of squills and other remedies internally administered.

" On the sixty-fifth day the ulcers were in the same indolent

condition, the parotid continued swelled, and the axillary glands of the left side also became enlarged, and occasioned excessive pain. Cerate, containing the acetate of lead, was applied to the ulcers, a mercurial plaster to the parotid, and emollient poultices to the axillary glands.

" The sixty-second day both the expectoration and the mucous rale were somewhat diminished, and oppression of breathing was experienced. The ulcers were unchanged, but their suppuration was more scanty. Digitalis, nitre, decoction of lichen, &c. were given internally : baths containing mustard ; ulcers dressed with cerate, mixed with a sixth part of chloride of lime.

" On the eighty-second day (the twenty-seventh of the catarrhal affection), the mucous rale was less general, and only heard at intervals ; the expectoration less severe, but the sputa presented the same characters. The dyspnœa had altogether disappeared under the influence of cutaneous rubefacients. Some pustules, caused by tartar emetic ointment, had coalesced and formed an ulcer of the same characters with the previous sores, which, up to this time, had experienced no change from the chloride of lime, or any of the other remedies applied.

" The patient was in this condition when I resolved to try the effects of iodine and its preparations. Accordingly, frictions of an ointment containing the iodureted hydriodate of potash were made in the axillæ. The ulcers were dressed in the same way, and the parotid covered with a plaster of the following composition—for two plasters :—

Diachylon	℈ ij
Iodine	gr. xxx
Hydriodate of potash	℈ ij
Extract of opium ..	gr. xxx

" The patient also took internally two glasses a day of a solution of a grain of iodine and two drachms of muriate of soda, in a bottle of water.

" Fifteen days after the application of this ointment to the ulcers, I perceived a remarkable change. Their surface was finer, of a vermillion tint—their edges less puffy—their substance firmer, less

painful on each dressing, and the suppuration at the same time less abundant and of excellent quality. The sub-clavicular ulcer was nearly healed.

" Eleven days later the change was still more remarkable. The ulcer of the chest was completely cured; one on the leg and another on the neck were diminished in size more than half, and were in a state of rapid cicatrization. The enlarged axillary glands had disappeared on the left side, and were two-thirds smaller in the right. The parotid gland was softened and much reduced in dimensions. The expectoration easy, and the sputa of a mucous character, homogeneous, and less adherent.

" On the fortieth day after the preparations of iodine had been commenced, the young patient was perfectly cured. The ulcers were healed without deformity, the sub-maxillary glands had disappeared completely, and the parotid had fallen to its natural size. The thoracic symptoms were also altogether subdued.

" Two years have now elapsed since the cure, and young D. remains in the enjoyment of the most perfect health."

Two additional circumstances connected with M. Bermond's researches remain to be noticed. He informs us, that to the preceding cases he could add numerous others, from the facilities which his situation of Physician to the poor of the Arrondissement de Charenton affords him in the study of scrofulous diseases; but he adds, that he is unwilling to place cases before the public the results of which may rather have been anticipated than ascertained, and he prefers to wait a sufficient length of time, until the permanency of the cure be incontrovertibly established. He however declares in general terms, that the numerous scrofulous patients at present under his charge never experienced any improvement until the iodine treatment was commenced.

The second point worth particular notice, is the association of opium with the other ingredients, in the plaster which appears to have exerted such a speedy and beneficial in-

fluence over the ulcers in the preceding case. To this subject M. Bermond thus alludes :—

"I have frequently perceived that the application of preparations of iodine to the skin occasioned such intense rubefaction and violent pain that I have been obliged to suspend their use for some time, and use emollients to the parts; but when I combined the extract of opium with the iodine, no such accidents occurred in any instance. This fact deserves attention, and further illustration from new observations."

This additional illustration I am enabled to place in juxtaposition with M. Bermond's cases, in the subjoined section, by an analysis of the important and voluminous paper recently published in the *Journal Hebdomadaire*, by M. Lemasson, *interne* at the Hôpital St. Louis.

II.—REMARKABLE EFFICACY OF A COMBINATION OF IODINE AND OPIUM IN THE TREATMENT OF SCROFULOUS ULCERATION OF THE SKIN.

M. Lemasson's Memoir, under this title, contains a minute account of eight cases treated with this combination. Besides these cases the essayist advances many valuable observations, which, though destitute of strict originality, are still important, from the ample corroboration they afford to the results obtained by M. Lugol. I have stripped the cases of all unnecessary details, so that they are rather an outline than a version of this part of the Author's essay.

Scrofulous Ulceration, with Sphacelus of the Cellular Tissue—Treatment by Iodine and Opium—Rapid Cure.

Case I.—Madame ****, aged 44, of tall stature, and apparently vigorous habit, but of soft and flaccid constitution, solicited my assistance towards the end of January. She had lost several of her relatives by pulmonary consumption. Her husband, on the contrary, was of a healthy family, and participated in their freedom from hereditary disease. One of her children, a boy, aged 11, was affected with scrofulous ophthalmia.

Since the age of 15, Madame **** was affected with a large scrofulous ulcer, which, wearied of the repeated futile attempts at its cure, she at length came to consider as totally irremediable. Besides this ulcer, her catamenial secretion was always irregular, and her health bad; of late the progress of the ulcer became alarmingly accelerated.

On the 25th January, when I paid my first visit, I found the lady in a state of much anxiety; there were headach, feverishness, loss of appetite, and the several other indications of acute disease. The subclavicular region was the site of a deep ulcer, seated on a tubercular base, the offsets of which covered the lower third of the right side of the neck and the top of the shoulder, where they formed a kind of solid mass, impeding the motions of the neck. The base of this sore was occupied by a mass as large as a small egg, of a blackish-yellow colour, of horrible fetor, and composed of gangrenous cellular tissue; the circumjacent skin was of a livid red colour, perforated with fistulous openings communicating with each other.

Despite of my experience in scrofulous diseases, I confess that I was alarmed for the event and embarrassed in the treatment of the case. Unwilling either to bleed, or to have immediate recourse to preparations of iodine, I contented myself with prescribing emollient poultices to the ulcer, and diluents and injections for internal use. Absolute diet was also enforced.

On the fourth day the feverishness was much abated. I removed a part of the slough with the scissars and bistouri, and the

ulcer was dressed with a mass of charpie spread over with iodu-retted ointment, and afterwards covered with a poultice. Two hours after I was compelled to remove the dressing, which produced intolerable pain and nervous irritation. I then for the first time thought of combining opium with the iodine, with the intention at the same time of relieving the pain and obtaining the specific benefits of the latter remedy. The following ointment was the form employed in the present instance:—

℞	Iodine	gr. xv
	Hydriodate of potash ..	ʒi
	Rousseau's laudanum ..	ʒii
	Fresh lard	ʒij

The first dressing with this ointment was borne without much pain, and even this very speedily ceased.

On the fourth day after this mixture the appearance of the ulcer was sensibly improved. The use of iodine internally was also commenced.

On the 15th February the base of the ulcer was covered with healthy granulations, and cicatrization was evidently commencing. The same treatment was continued. Two ounces of gentian wine were given every morning fasting. The poultices were omitted altogether.

In the course of a few weeks perfect cicatrization of the ulcer took place. Early in July the lady was attacked with the *grippe* then epidemic in Paris, but no relapse of the scrofulous disease was thus occasioned. On the 8th July she was perfectly cured, as well of her old as of the more recent affection, and she now feels the happiness of being freed of a dressing which for twenty-nine years she was accustomed to consider an indispensable article of her toilet.

Although this lady is perfectly cured of her local symptoms, I am far from regarding her as altogether secure, and I am persuaded that the next spring will witness a new effort of fermentation in the scrofulous leaven, with which her constitution is imbued; nevertheless, as far as this case went, it proved that immense advantage was obtained from the combination of opium and iodine.

Indeed, such rapid and extraordinary amendment I never witnessed from the use of a simple ioduretted preparation.

Tubercular Ulcers—Inefficacy of the ordinary Anti-scrofulous Treatment—Rapid Cure under the employment of Opiate and Ioduretted Ointment, with the internal use of Iodine.

Case II.—A foundling named Francoise, æt. 24, of small stature, constitution otherwise strong, of firm muscle, bright complexion, deep black hair, and fine teeth, was admitted into the Hôpital St. Louis on the 4th March, 1831.

On admission she had two ill-looking ulcers beneath the left branch of the lower jaw, of ten months' duration, and which had resisted all the usual anti-scrofulous remedies. The ulcers had been preceded by tubercles for four years. She was immediately submitted to the following treatment, viz., two ounces of gentian wine every morning fasting; sulphureous baths; dressings of the hydriodate of potash ointment. After this plan had been followed six weeks no improvement was perceptible, and she was removed into M. Francois' ward. Next day she was placed on a different treatment, namely the ioduretted mineral water (No. 1, of M. Lugol), three sulphureous baths weekly; the tubercles to be rubbed with the opiate and iodine ointment, and the ulcers to be similarly dressed.

By the 1st of May the sores were considerably diminished in size, and had assumed a natural appearance: the tubercles, however, continued unchanged.

On the 12th May (seventeenth day of treatment) the ulcers were completely cicatrised, and the tubercles much diminished. On the 24th she left the Hospital, bearing no further traces of her disease than two minute and almost imperceptible scars.

Tubercular Ulcers, improved by the Iodine Ointment in Ten Months; and cured in a few Weeks by the combination of Opium and Iodine.

Case III.—Adele Demoville, æt. 26, of full stature and stout frame, came to Paris to obtain medical advice for a scrofu-

lous affection, for which all the provincial physicians had in vain been put in requisition for five or six years. A brother and sister died of pulmonary phthisis; but her parents were still living, at an advanced age. At the end of September, 1830, she presented herself at M. Lugol's public consultation.

At the upper and back part of the neck there existed a large tubercular mass, generally hard, pierced with fistulous orifices, two of which communicated by a long subcutaneous canal, with another mass of tubercles situated anteriorly on the neck a little below the larynx; pressure on either of these swellings readily forced a discharge through the fistulous openings in the other.

She was treated at first with iodine internally, and the ointment rubbed over the tubercles. On the 4th September a softened tubercle was punctured; a large quantity of softened tubercular matter was discharged; an iodurettted solution was injected into the sack of the abscess. Several similar abscesses were opened from time to time during two months, and some improvement was experienced, when the patient returned to the country to persevere in the use of the remedy at home; she was, however, soon obliged to suspend its internal use in consequence of acute pain referred to the stomach, and at length, wearied of the obstinacy of her disease, she again came to Paris in March, 1831, at which time she first came under my particular care. The local disease was then considerably altered for the better, but she laboured under very harassing dyspeptic symptoms. I desired her to intermit again the internal use of iodine, and I dressed the ulcers with the opiate and iodurettted ointment.

Early in July cicatrisation was complete, the tubercles had disappeared, the skin scarcely retained any morbid thickness; she then returned to the country in the best local and general health.

Tubercular Scrofula accompanied by Ulceration; every kind of treatment unavailing for four years—Topical Application of the opiated Ointment of Iodine; internal Administration of Iodine —Cure nearly accomplished.

Case IV.— Marie Cherbonnier, 24 years of age, of middling stature, weakly constitution, with fine light-coloured hair, was admitted into the Hôpital St. Louis on the 1st of August, 1829, to undergo treatment for a species of melitagra, or eczema impetiginodes, and particularly for a large tubercular ulceration, which covered the inferior part of the neck, and extended from the upper part of the right shoulder to the sternum. The little intelligence manifested by this female, who could give no clear account of herself, prevented me from ascertaining to what treatment she had been previously submitted; although she asserted she had used no remedy for fifteen months except baths, barley water, and emollient poultices to the affected part, yet I cannot credit her assertion when I consider the character of the celebrated physician under whose care she was placed for a considerable time. Without attempting to decide on this matter I may, however, remark, that when she came under the care of M. Francois, her name had been inscribed amongst the incurable to be sent to Salpetriere. The face of this patient was disfigured by a zone of pustules, in some places scaly or covered with crusts, which, commencing on the right cheek, near the angle of the mouth, ascended to the lower eyelid, crossed the nose, and descended on the other side of the face to the upper lip. The lower portion of the neck, on the right side, was occupied by an enormous tubercular swelling nearly as hard as scirrhus, which seemed to shoot to the chest, and to surround the shoulder both above and below. The surface of this tumour was irregular and of a bluish red colour; there were several fistulous openings; and in the centre we saw a large circular ulcer, of a pale yellow colour, which seemed as if produced by degeneration or sphacelus of the cellular membrane. The first opinion which we formed of this affection was, that it was alto-

gether incurable; yet, as I was desirous of employing the opiated ointment of iodine in all cases of scrofulous ulceration, in order that I might form a better judgment of its mode of action, I requested M. Francois to place her under my care while she remained in the hospital. The following treatment was adopted:—

April 15.—Gentian wine two oz. every morning; mineral iodurretted water (No. 1 of Lugol). Opiated ointment of iodine was rubbed in, and used for dressing. Alkaline bath every second day. The cheeks rubbed with styrax.

Early in May an improvement was seen in the state of the ulceration, instead of a yellow, the bottom of the sore now showed a good red colour, the blue tint had disappeared; the face also seemed much improved by the employment of the styrax. Same treatment is continued.

At the end of May the amelioration of the patient was so manifest as to surprise M. Francois and the pupils, who had witnessed the previous state of Cherbonnier. The disease is plainly advancing towards a cure; the tubercular swelling has subsided at least two-thirds, so much so that the skin covering the tumour is now wrinkled; what remains of the swelling is softened, indicating a further tendency to absorption. The ulcer is also reduced in size, it is now not larger than a two-franc piece, and its edges are on a level with the surrounding integuments. Same treatment continued.

About the 15th of June the original ulcer was completely healed, with the exception of a small fissure between two folds of the skin, which was kept open by continued friction. The tubercular basis of the tumour had almost disappeared, and the only trace of disease which remained was a large red cicatrix, from which that peculiar mucous exudation took place which I have already noticed. In front of the sternum, however, there still remains a deep ulcerated spot, producing a moderate quantity of pus. The use of the ointment is suspended, and for it I have substituted the common iodine solution. At present Cherbonnier may be considered nearly well; the suppuration has almost entirely ceased, a small quantity alone coming from a minute fistulous opening on the sternum. I have not been very anxious for the healing of this

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opening; for the duration of the former disease, and the rapidity with which the general suppuration was arrested, seemed to demand some further drain, at least for a short period. If it be not gradually obliterated by the natural process, I will have recourse to stimulating injections.

Scrofula of the Neck with Tubercles and Ulcers—Iodine employed for Six Months in the usual manner without any good Effect—Treatment by the opiated Ointment of Iodine—Cure far advanced.

Case V.—A. Lami, æt. 15 years, of the ordinary stature, and pretty good constitution, with delicate skin, and fair chesnut hair, entered the Hôpital St. Louis on the 16th of September, 1830. The mother of Lami died when she was 29 years of age, with symptoms of pectoral disease; her health had always been excessively impaired; but her father, now 41, presents all the appearance of a man of strong constitution. At the time of her admission into the hospital, Lami was affected with a large, hard, and indolent tumour on the left side of the neck: this swelling had existed for about six months, and was unaccompanied by change in the colour of the skin, pain, or any trace of suppuration.

The following treatment was employed:—Drink of lemonade acidulated with tartaric acid; mineral ioduretted water; frictions over the affected part, with the pomade of the proto-ioduret of mercury. For six months the young patient was submitted, under my inspection, to the above treatment, but the tumour was little affected or altered: four tubercular masses became softened, were opened, and the orifices degenerated into scrofulous ulcers. Finding but little alleviation from the remedies employed, Lami returned home for two months, and again entered the hospital on the 4th of June. When I examined her at this period, I found the scrofulous swelling nearly as large as it had been originally, with four ill-conditioned ulcers on its surface. 7th of June: Treatment, infusion or alterative drink (of M. Francois), with twelve drops of

the solution of iodine; night and morning friction, and dressing with the opiated ointment of iodine; Barrege baths every second day. At the end of June, the improved state of my patient was very manifest; the scrofulous swelling did not present its usual appearance; but seemed, as it were, penetrated by a number of channels; a phenomenon which I have already noticed as a certain indication that absorption was far advanced. Two of the ulcerated surfaces were nearly cicatrized. Same treatment continued.

10th of June.—We can plainly discern a marked diminution in the size of the tumour, and that the granulations are now beginning to fill in, while suppuration has nearly ceased. At the advice of M. Bouillaud we have applied the vapour of steam three times a week to the tumour; which seems only to require an accession of vital force that absorption may proceed more rapidly.

Scrofulous Tubercle in a state of Ulceration for Five Years—The usual treatment for Scrofula employed without effect for Three Years at the Hôpital des Enfans—Cure nearly completed by the external and internal use of Iodine.

Case VI.—Clara Delbay, æt. 16, of the ordinary stature, constitution apparently good, with relaxed state of the skin; complexion brown, hair darkish, entered the hospital on the 12th of April, 1831. She stated that her parents enjoyed a good state of health, and that only one of five of their children was affected with scrofula.

From the age of 11 the patient had been afflicted with several scrofulous enlargements on the right lower jaw, for which she entered the Hôpital des Enfans; for three months she was treated unsuccessfully in that establishment with bitters, antiscorbutics, and emollient poultices. When this patient placed herself under the care of M. Francois (12th of April), an enormous scrofulous tumour filled the submaxillary region of the right side, extending to the symphysis of the chin: five large ulcers were situated on this tumour, and two fistulous openings on the ramus of the right lower jaw. At first view I was led to believe, from the appearance of the ulcers, their form, and from the nature of the sanies which they

discharged, that the bone underneath was injured, or at least deprived of its periosteum; however, the most careful examination with the probe could not detect a carious state of the bone, a circumstance highly favourable as a prognostic, since scrofulous caries is, above all other affections, beyond the power of remedy.

The following treatment was adopted:—Gentian wine, two ounces every morning; mineral iodurettted water, which was soon replaced by an alterative drink containing twelve drops of the solution of iodine; friction and dressing, night and morning, with the opiated pomade of iodine; bath three times a week.

Early in June the tubercular mass was nearly removed; the ulcers healed; and the disease seemed altogether removed, with the exception of the two fistulous openings, which did not partake of the general improvement. The ulcers were touched now and then with a stimulating iodine lotion.

Early in July, the tubercular masses had diminished still more. Six ulcers are covered by solid cicatrices, and one only remains open, below the ear. The frictions are suspended, and replaced by the use of the common iodine lotion. At present Delbay enjoys excellent health; her complexion now shows a freshness for a long time stranger to it; the ulcers are all healed, and the fistulous opening closed by a deep cicatrix which seems to adhere to the periosteum.

Enormous Tubercular Scrofula, extensively ulcerated—The Disease exasperated by every kind of treatment employed by several Physicians, and at the Hôpital des Enfans—Much Improvement experienced by the use of Iodine internally, and of the opiated Ointment.

Case VII.—Anne Migette, 15 years of age, small stature, delicate eyes, highly scrofulous constitution, entered the hospital on the 16th of May, 1831. Her father had been dead for 15 years, and she can give no account of the state of his health. Her mother, who is now 41 years of age, had been always afflicted with scrofula, which compelled her to remain for nine years in the

Hôpital St. Louis. The subject of the present case always experienced a very delicate state of health; at one time she was afflicted with obstinate ophthalmia, at another with crustaceous inflammation of the nares; it was only at the age of 13 that the tubercular matter commenced to appear about the regions of the neck and lower jaw.

At the time of her entrance into the hospital the state of this patient was most unpromising: the whole front of the neck, from one ear to the other, was covered by a large tubercular mass, presenting in its centre some traces of old cicatrices; there were also two fistulous openings, which permitted the introduction of a probe and its rotation in all directions; in another part of the mass we saw a large sanious ulcer, of unequal depth, with tubercular masses scattered here and there, and seemingly about to give way, from their extreme state of softness; the constitution of the patient was altogether undermined and broken down by the effect of the scrofulous disease.

The difficulties of this case seemed insurmountable, but I was resolved to study the result of a treatment with iodine. The remedies were those employed in the cases already stated.

At the end of May the ulcers were covered with red granulations, by which their appearance was considerably improved; the appetite much increased; the general expression of the countenance indicated returning health. The mineral water was replaced by the alterative drink containing eight drops of the solution of iodine, night and morning. Several softened tubercles were opened and dressed with the ointment usually employed.

At the end of June the symptoms of improvement were well marked; not only the ulcers were diminished in size, but the tubercular masses seemed in a fair way of being totally absorbed: at the time I now write the state of Migette has undergone so great, I may say so unexpected, an improvement, that I have not hesitated to insert it in the present essay.

Ulcerated Tubercular Scrofula—Scrofulous Affection of the Bones, with Abscess—Treatment with Bitters, Antiscorbutics, and the Deuto-Chloruret of Mercury, unavailing—The Ulcers cured by the employment of Iodine internally and externally.

Case VIII.—Joseph L., aged 7 years, of the usual stature, feeble constitution, consulted me in the month of February last. Besides several ulcerated masses, there was a vast number of small tubercular tumours on the thighs and legs, which had been mistaken for boils by another practitioner. My assistance was required to open one of these supposed boils, on the anterior part of the tibia. The swelling being opened evidently consisted of a scrofulous abscess, arising from the softening of a subcutaneous tubercle. I was compelled to open several others of these swellings, as it was in vain to assert their scrofulous origin; but each was converted into an ulcer of so marked a character as to make any further mistake impossible.

Preparations of iodine were proposed by me, and rejected from a ridiculous fear of this remedy, which is still very common; and the little patient underwent a course of bitters and antiscorbutics, containing a small quantity of corrosive sublimate. The ulcers were dressed with simple ointment.

At the end of May I was again called in to try the iodine, for the ulcers were not improved, and new tubercles had been deposited, especially in the face, causing much alarm to the family. On the right hip I found a large indolent tumour, which had escaped the notice of the child's parents. He was placed immediately under the following course of treatment:—

1. Thrice a day, four drops of the iodine solution, in a small glass of sugared water.
2. Frictions and dressing with the opiated iodine ointment.
3. Two baths a week.
4. Strengthening diet and abundant exercise.

Under this mode of treatment his constitution became invigorated, and the ulcers healed with surprising rapidity.

Several tubercles were absorbed without passing through the usual stages of softening and ulceration. The tumour on the face to which most importance was attached unfortunately continued to soften.

The disease of the hip has not been very sensibly improved; perhaps the treatment has not been continued sufficiently long. I have applied two large cauteries on either side of the joint; the iodu-retted bath is now used. I have also advised the child to walk about as usual. This method of M. Lugol, so contrary to that recommended by the most eminent surgeons, will, no doubt, meet with much opposition; but the facts which establish its propriety are multiplied every day; and I have no doubt but physicians will soon be convinced of the necessity which M. Lugol has proved to exist of allowing free motion and exercise to these patients, who have hitherto been debilitated by confinement to bed.

GENERAL CONCLUSIONS DRAWN BY M. LEMASSON.

From the facts now stated, I conceive we may conclude—

1. That iodine when properly administered is not injurious to the animal economy, as several physicians assert.

2. That iodine, as M. Lugol has long since proved in the most satisfactory manner, is a remedy much more efficacious than any of those usually employed with treatment of scrofula, since it seldom fails to produce a favourable improvement when all other medicines have failed.

3. That in cases of scrofulous ulceration the union of opium with iodine imparts to the latter a power which it does not singly possess, either from the tonic properties of opium—from its power to diminish the secretions, or because the combination of these two most useful remedies enhance their intrinsic qualities.

§ III.—CASES OF SYPHILITIC ULCERATION TREATED BY THE PROTO-IODURET OF MERCURY.

Although the consideration of syphilitic diseases is scarcely included in my design, the subjoined cases may be cited as companions to those described by M. Lugol in the third part, p. 155. It is by no means improbable that iodine and its compounds may be found, by experience, of important service in the numerous embarrassing cases of syphilis occurring in scrofulous individuals, in whom the use of mercury is, under certain circumstances, fraught with the most imminent danger. Some of M. Lugol's cases might even lead us to suppose that iodine in its simple state possesses a degree of antisyphilitic power; and this supposition is rendered still more probable by the analogous effects produced by mercury and iodine on the salivary apparatus. In the mixed cases of scrofula and syphilis, iodine may also act in another and perhaps more valuable manner, namely,—by preventing by its peculiar or specific virtues any aggravation of the scrofulous disposition, while mercury is at the same time brought to bear on the syphilitic affection. The success of the proto-ioduret of mercury, a preparation in which one atom of iodine exists in combination with one atom of mercury, affords some countenance to this speculation. I select the following cases from the clinical reports published in the *Lancette Francaise*, June 1831, of cases treated by MM. Biett and Breschet, at the Hôpital St. Louis, and the Hotel Dieu.

HÔPITAL ST. LOUIS.

Syphilitic Ulceration successfully treated with the Proto-Ioduret of Mercury, by Professor Biett.

A private in the fifth regiment of Hussars, æt. 31, of weak constitution, but otherwise in good health, was in 1828 attacked with

two primitive buboes after a suspicious connexion. He entered the hospital at Thionville, and was placed on low diet; a great number of leeches were applied, but the buboes suppurated and burst. The discharge was tedious, and the cicatrization exceedingly difficult. Having been removed to the camp at Luneville, he became quite exhausted by his cavalry duties; and after this he continued in a weak and suffering state for a considerable length of time. In January 1831 several small livid red tumours, free from pain, appeared on various parts of the body, and though stationary at first, soon changed into round ulcers with angular edges, and their basis of a greyish colour. On the 29th March following he was received into the Hôpital St. Louis, his constitution was then weak, and he had several ulcers. He was kept in bed for some days, and subsequently had eighteen alkaline baths, from which no improvement was experienced. He was then directed to use the proto-ioduret of mercury *internally*, in a dose of two grains daily.

On the third day of this treatment the bases of the ulcers had lost the grey colour, and were covered with fine vermillion granulations. In five days salivation ensued, but the form of the ulcer was much changed for the better. The internal use of the remedy was suspended while the salivating action continued, but it was again resumed when the mouth became well, and all the sores are at present almost entirely healed.

Syphilitic Pustules and Lichen, occurring twenty years after the healing of a Venereal Ulcer, treated without Mercury—Employment of the Proto-Ioduret—Cure.

Case II.—Beauchamp, æt. 38, of strong constitution, made the Russian campaign in 1812 as an artilleryman. At Berlin he contracted an ulcer on the penis and a discharge from the urethra, and being unwilling to quit active service he had recourse to a mode of treatment common among soldiers, namely, covering the ulcer with snuff. The sore healed up, and he subsequently enjoyed

good health. In 1826 he became driver of a *diligence,* in which employment he endured great hardship and irregularity in his mode of living. In January 1831 his health declined, and there suddenly appeared an eruption of a pustular character on the left leg; at first this was trifling, but in some time it affected the entire limb, extended itself to the face and the rest of the body; on the posterior surface it was more scattered than before, and on the face there were also some spots of syphilitic lichen.

He entered the hospital on the 16th of February. The leg was covered by a psydraceous eruption, surrounded by a reddish-brown circle, which did not change colour on pressure; his spirits were much depressed, and his sleep disturbed by nocturnal pain. On the 15th April he was placed on the use of the proto-ioduret of mercury, commencing with two grains, which subsequently were increased to four.

On the tenth day the eruption of the leg was altered in appearance, the spots on the face were fading; the digestive organs were unimpaired. The nocturnal pains abated, and on this day (14th June) the cure was perfectly established.

Case III.—A newsman named Henry, æt. 20, of weak constitution, contracted in 1827 an ulceration of the glans penis after an impure coition. He not only neglected to employ any anti-syphilitic treatment, but he did not even alter his mode of living, he continued to work, committed great excesses, and contracted gonorrheal affections, which he equally neglected. Towards the end of 1828 an eruption of large red tubercles of round form showed itself in the left side, and he soon after this entered the Hôpital St. Louis.

On admission his back was the seat of crowds of tubercles with ulcerated summits, spreading to the adjacent parts. He was prescribed alkaline baths, by which the eruption was somewhat modified; but he left the hospital without being perfectly cured, and a relapse of the disease soon took place with the same violence as it before possessed. Re-admitted in December 1830, the alkaline baths were again employed, and two grains first, and afterwards four grains of the proto-ioduret of mercury were given internally every day. Copious ptyalism soon supervened, which rendered it

necessary to intermit the medicine, the greater number of the ulcers then being perfectly healed. It was again resumed, but the susceptibility of the patient was so great that the dose could not be increased beyond two grains; the cure has now (11th June 1831) been complete more than a month, and the patient will immediately leave the hospital.

Tubercular Syphilis—Failure of Cinnabar Fumigations—Cure by Frictions of the Proto-Ioduret of Mercury.

Case IV.—Claudin, a tailor, æt. 25, of strong constitution, moderate life, and habitually excellent health, was affected with itch in 1827. Having been improperly treated, this disease was speedily followed by a papulo-vesicular eruption, to which the patient paid no attention. Towards the end of 1830, a tubercular eruption took place, engaging the entire skin. On admission, in February, to the Hôpital St. Louis, the glans penis was carefully examined, but no trace of ulceration could be detected. Fumigations, to the number of fifty, were employed in vain, and the disease suffered no change eventually. Having premised a few alkaline baths, we had recourse to frictions of the proto-ioduret of mercury, twelve or fourteen grains of which were daily used in the form of ointment. Under this treatment the disease was speedily cured.

The following case differs from the preceding, but is still possessed of considerable interest.

HOTEL DIEU.

Case of Carcinomatous Ulcer at the greater Angle of the Eye, treated with the Deuto-Ioduret of Mercury, by M. Breschet.

Dufresne, a bleacher, æt. 30, entered the Hotel Dieu on the 23d last February, affected for seven or eight months with a carcinomatous ulcer of the greater angle of the right eye, which had unceasingly increased since its first occurrence. M. Dupuytren having ascertained its cancerous nature, employed as a local corrosive application the acid nitrate of mercury, a preparation which

he frequently used with success in similar cases. Three or four cauterizations were performed at intervals of eight or ten days; the fourth occasioned an erysipelas of the face, which was still present when M. Breschet took charge of the ward in which the patient lay; he waited until the erysipelas had perfectly disappeared to submit the cancerous sore to a new treatment. The ulcer at this time (10th April) was of oblong form, occupied at the same time the internal angle of the eye, and the corresponding parts of the nose; its base had a fungous nipple-like appearance, of livid colour, and yielding a scanty discharge of fœtid sanies; its edges were unequal, notched, and partially everted. An ointment of one part of the proto-ioduret of mercury and seven of fresh lard was first applied. This dressing was renewed daily, but after three weeks the aspect of the sore was so little improved, that this ointment was omitted, and another presented composed of seven parts of lard and one of the *deuto*-ioduret of mercury. In a few days the ulcer was completely changed, its base became bright red, the nipple-like excrescences disappeared, the fetid suppuration ceased, the humid edges gradually diminished in size, and in twelve days the ulcer was brought so perfectly to the condition of a simple sore or wound, that simple dressing was alone resorted to. It rapidly became cicatrised, and on the 3d May the patient was dismissed perfectly cured, free from deformity, with a white, flexible, indolent cicatrix, and without the least enlargement of the adjoining tissues.

§ IV.—THERAPEUTIC EFFECTS OF THE IODURET OF LEAD.

The ioduret of lead appears to be by far the most interesting of any of the metallic compounds of iodine yet tried in practical medicine. Its introduction is but of very recent date, and is due to the researches of two Parisian physicians of great promise, MM. Cottereau and Verdet de Lisle. Having witnessed the singular rapidity with which absorption took place in a tumour to which a soap accidentally contain-

ing the ioduret of lead was applied, they immediately commenced an extensive investigation into the therapeutic properties of the compound, and have obtained results, certainly, of no trivial importance. The following passage, quoted from a letter published in one of the French periodicals, by MM. Cottereau and De Lisle, leads us to expect much from the repetition of clinical experiments on this subject:—

"We thank you for calling the attention of your readers to this new medicine; for we have ascertained, in an incontrovertible manner, that of all the preparations of iodine this is the most efficacious, and promises the most prompt and constant action. It is, moreover, free from the inconvenience of creating the cutaneous inflammation which the simple iodine and hydriodates occasion. The proofs of this we shall afford by publishing the cases we have collected, as well in Paris as in the hospitals and departments,—cases the majority of which had previously been ineffectually submitted to the action of iodine in other forms. Many other practitioners, who have prescribed the remedy at our desire, participate fully in these opinions."—*Gazette des Hopitaux, 30th June,* 1831.

Extensive trials of this substance have been made at the Hôpital des Enfans by M. Guersent, and at La Pitié by M. Velpeau. M. Guersent has not yet published any account of his researches; but Dr. Haas states, in the *Journal Hebdomadaire,* No. 31, that "he has already witnessed the complete and rapid success of the ioduret of lead, in several cases treated by M. Guersent at the Hôpital des Enfans." I subjoin an outline of some cases treated by M. Velpeau, at La Pitié, and mentioned by him in his clinical lectures.

Case I.—Leroux, a turner, æt. 28, was admitted on the 4th April. Originally of strong constitution, this patient, for three years, was affected with numerous indolent swellings of the neck,

arm, and axilla. Three of these tumours were situated below the clavicle, the largest being the size of an egg. Two others, beneath the axilla and at the elbow, were nearly as large; and the latter was as hard as flint. The swellings were apparently of scrofulous nature. The patient had long been subjected to the use of other preparations of iodine before his admission; and though one of the most expert practitioners in Paris in this particular department of practical medicine had had him under his care, the tumours continued stationary. On the 4th April frictions were commenced, with an ointment containing one drachm of the ioduret of lead to an ounce of lard; and the patient also took the ioduret of lead internally, in the dose of one quarter, and afterwards of half a grain. Under the influence of this treatment the swellings have become remarkably altered; the tumour in the axilla has almost completely disappeared; that of the elbow is softened, flattened, and much reduced in size; and the three clavicular tumours have lost two-thirds of their volume. Symptoms of digestive irritation early in the treatment caused the intermission of the internal use of the remedy.*

Case II.—A man, æt. 30, for two years had three indolent tumours in his neck, produced by the engorgement of the lymphatic glands. The first of these swellings was of irregular form, and was situated on the body of the lower jaw, and was nearly the size of half a hen's egg. The two others were placed on the lateral parts of the neck, one to the right, the second to the left, towards the posterior border of the sterno-mastoid muscle: they were of the same size as that on the jaw.

The ioduret of lead was used internally and externally, as in the preceding case, and continued for six weeks. The sub-maxillary swelling continued stationary in size, but divided into several lobes. One of the tumours of the neck decreased in volume; the other has almost disappeared. We should add, that before admis-

* These symptoms, however, evidently depended on peculiarity in the patient; for ten-grain doses of this substance are easily borne, without the slightest annoyance.—Translator's Note.

sion this patient used frictions with the ointments of the hydriodate of potash and the proto-ioduret of mercury, without any benefit.

Case III.—In the ward of St. Jean, No. 7, is a young girl, æt. 15, of scrofulous constitution, and having several tumours on the right and lateral part of the neck. This patient, who has been six months in the hospital, has been submitted to active antiphlogistic treatment by M. Lisfranc, without benefit; and subsequently, by the same surgeon, to M. Lugol's method, with equal want of success. In the beginning of April the ioduret of lead was commenced. In eight days the swellings, previously round in form, became knotted, unequal, and divided into numerous lobes. Erysipelas, however, being epidemic in the ward at the time, the patient was attacked, and the ioduret was necessarily suspended. The erysipelatous inflammation having principally invaded the parts previously diseased, an abscess was formed round the cervical tumour, and it became necessary to evacuate its contents by a puncture. Her general state has not yet permitted a recurrence to the treatment which at first was so beneficial.

In the subsequent part of the Appendix, adequate directions will be found for the preparation of the iodurets of lead and mercury.

2.—CHEMICAL PROPERTIES OF IODINE, THE HYDRIODATE OF POTASH, AND THE IODURETS OF LEAD AND MERCURY.

The two first of these compounds being officinal in the Dublin Pharmacopeia, and fully described in the elementary works of chemistry and materia medica, I shall not allude to them more minutely than is necessary for the correct understanding of the modes by which their degree of purity may be ascertained.

1.—*Iodine.*

Chemical Properties.—IODINE is a simple non-metallic substance, of a peculiar sea-like odour, of blueish black colour, sp. gr. Thomson, 3.085. When exposed to the air at ordinary temperatures it loses weight, and eventually disappears. Exposed to heat, it melts at 225 F., and boils at 347, and passes off in a vapour of a characteristic and beautiful violet colour. When boiled with water this vapour also rises with the steam. Iodine is very soluble in alcohol and ether, forming deep brown tinctures. In water it is almost insoluble, 7000 parts of that fluid taking up but one part of iodine; but even from this almost infinitely small proportion it acquires a light brown colour. With starch, iodine forms a blue compound, insoluble in cold, and decomposed, with loss of colour, by hot water. Iodine forms, with the metals, compounds of brilliant and peculiar colours, containing either one or two atoms of iodine to one atom of the metal. Under ordinary circumstances it does not unite with the metallic oxides. With hydrogen iodine forms one acid compound, the hydriodic acid, which may be prepared by passing a current of sulphuretted hydrogen through water containing in suspension iodine, the iodide of starch, or the iodurets of silver, lead, &c.

When iodine is boiled with a solution of alkaline potash or soda in water, this fluid is decomposed, and its oxygen forms iodic acid with part of the iodine, and its hydrogen hydriodic acid with another portion; both these acids then unite with the potash, and an iodate and hydriodate of potash are formed.

Iodine exists in combination with either oxygen or hydrogen, and, united to soda, potassa, or lime, in many species of thalassiophytes, in the fuci, algæ, laminaria, sponges, &c.

In the mineral kingdom it has been found associated with silver, in a silver mine of South America.

It is unnecessary to particularise here the various methods of preparing this substance.

ADULTERATIONS, &c.—From the high price at which iodine was sold on its first introduction into medicine, a great inducement was afforded for its adulteration, and accordingly, with a clumsiness and ignorance only equalled by their shameful cupidity, some druggists were in the habit of mixing the iodine with a liberal per-centage of *charcoal*, the protoxide of iron, plumbago, or the carburet of that metal.

Although the price of the article has now fallen to 1*s.* 6*d.* the ounce, with many eminent and honourable wholesale houses, still, perhaps, from the difficulty of abandoning old habits, some dealers yet practise the admixture above mentioned. The fraud may be at once discovered by heating ten grains (accurately weighed) of the suspected sample in a glass tube by a spirit lamp, and continuing the heat till no violet vapour is evolved; if any residuum remain, it indicates an adulteration, the extent of which may be ascertained by the weight of the fixed matter.

Perhaps an easier process is by throwing the suspected specimen into strong alcohol in sufficient quantity. All the foreign ingredients above enumerated remain undissolved.

By either of these methods the mixture of charcoal, the protoxide of iron, or the carburet of iron, may be discovered. I should not omit to add, that I have met with one specimen much more artfully and scientifically adulterated, and in which the fraudulent ingredients were, at the same time, soluble in alcohol, and volatilised by heat. I forbear, however, alluding to this mixture more minutely, because the fraud is comparatively so difficult of detection, that describing it would perhaps only lead to its more general practice. I should add, that in the *last* edition of Gray's Supplement

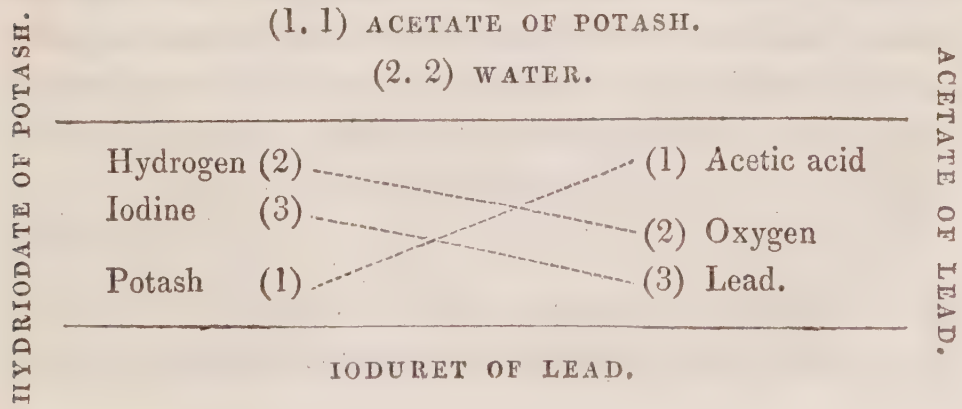
to the Pharmacopeias, the editor states that iodine is sold at the absurdly extravagant price of 1*l.* 5*s.* per ounce.

2.—*Hydriodate of Potash.*

This salt is prepared in various methods, viz. either by first preparing hydriodic acid, and then neutralising this with the carbonate of potash; or by boiling iodine with the carbonate of potash, adding iodine to the hot solution till turmeric paper is not turned brown; an iodate and hydriodate are thus formed, and the hydriodate may be separated by strong alcohol, and leaves the iodate undissolved. There are other processes of equal efficacy, but the preceding are sufficient to enumerate here.

When pure the hydriodate of potash (ioduret of potassium) is a beautiful white salt in cubical crystals; it consists of 100 hydriodic acid and 37.428 potassa; its taste is sharp, rather bitter; when devoid of excess of iodine it is free from smell. It is very soluble in water and alcohol, and its solution dissolves a large quantity of free iodine.

When the hydriodate of potash is mixed in solution with a solution of the salts of lead, silver, or mercury, double decomposition takes place, and an ioduret of the metal is thrown down. The subjoined diagram illustrates the action which ensues.



Analogous decompositions occur with the nitrates or muriates of mercury, silver, &c.

Adulterations.—The falsifications of this salt are so extensive and peculiar that the practitioner, who is not aware of their existence and the mode of their detection, need never attempt to place a patient under Lugol's treatment with any reasonable prospect of success. Had the adulterations been contrived for the sole and express purpose of destroying any antiscrofulous virtues which iodine may possess, the method could not have been more ingeniously devised.

It was long known that the hydriodate of potash was apt, during its preparation, according to the method of boiling with the alkali, to be mixed with a slight excess of potash, probably from the weakness of the spirit used to dissolve away the hydriodate from the iodate. Little attention, however, was paid to the subject until Mr. Pereira published a paper in the London Medical and Physical Journal, in which he described additional adulterations of much moment. A short time before Mr. Pereira's paper appeared, I had observed the same facts in Scotland, and demonstrated them to my pupils.

From these conjoint observations it appears that much of the hydriodate of potash at present vended by druggists, &c., contains large quantities of the muriate of soda, carbonate of potash, traces of the sulphate of soda, and other salts in minute quantities. One specimen of which I made a quantitative analysis, contained 64 per cent. of the carbonates alone; and this examination was fully confirmed by Dr. Christison, who also investigated the subject.

The pernicious effects thus exerted on the therapeutical applications of iodine in the internal and external treatment of scrofula, goitre, syphilis, &c., may at once be understood by consulting the subjoined comparative statement of the

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chemical properties of the pure and impure solutions of this salt.

PURE	IMPURE
1. Dissolves iodine in the cold, forming an active ioduretted hydriodate of potash for internal use.	1. Does not dissolve iodine in the cold.
2. When warmed with iodine and diluted with water forms an *active* bath, which excites powerful local action.	2. When warmed with free iodine converts it into the hydriodate of potash, a compound proved by Lugol to be nearly inert as a local or general bath.
3. Affords by double decomposition pure iodurets of lead or mercury for internal or external use.	3. Affords by double decomposition carbonates, chlorides, and sulphates of lead or mercury, compounds either inert or opposed in their action to the iodurets of these metals.
Conclusion. When pure, a valuable medicinal and pharmaceutical agent.	*Conclusion.* Impure, possessed of no medicinal or pharmaceutical value whatever.

In order to detect the presence of the carbonates and muriates of soda or potash, the best method is to add a solution of the nitrate of silver to a solution of the suspected hydriodate; if impure, a white precipitate of the carbonate, chloride, and ioduret of silver subsides. Filter, and when dry project the precipitate into ammonia, which dissolves the chloride and carbonate of silver, and the ioduret remains; of this ioduret of silver 220 parts correspond to 137.42 of the hydriodate of potash; the amount of the adulteration can therefore be readily ascertained by comparing the weight of the hydriodate of potash corresponding to the ioduret of lead obtained, with that of the weight of the specimen before the experiment.

As a trial test to detect these adulterations, a little acetate of lead should be added to a solution of the suspected speci-

men; if impure, a copious *white* precipitate is formed; if pure, the deposit is a fine *yellow* colour of a crystalline texture, and perfectly soluble in hot water, from which it crystallises on cooling in hexagonal scales of a golden splendour.

I trust I have now said nearly enough to guard the public and the medical practitioner from the mortifying effects of this shameful practice. All M. Lugol's experience has been placed in vain before the community, unless this sophistication be diligently sought for, and its authors efficiently punished.*

As it is more than probable that the management and preparation of iodurettted baths will fall into the hands of the proprietors of large bathing concerns, it is highly desirable that the patient should possess the means of ascertaining whether the baths are properly prepared, that is, whether they contain free iodine dissolved in pure hydriodate of potash. For this purpose the bather may procure a specimen of the water, and add to it, when cold, a cold solution of starch in excess: if free iodine be present, the blue colour will be produced, and the filtered colourless liquid will yield a *yellow* precipitate with the acetate of lead. As the patient's sensations will be his principal guide to the quantity of free iodine necessary to excite the cutaneous action of the remedy, I do not feel it necessary to describe here the mode of analysis by which the quantities of the respective ingredients in a given quantity of water may be ascertained. The analysis is, moreover, so complicated that I could scarcely hope to render it intelligible but to practised chemists, who, of course, do not require the information.

* When the hydriodate of potash is found to be adulterated, Lugol's aqueous solutions (see formulæ in Part I.) should be used in the internal treatment.

3.—*The Ioduret of Lead.*

This compound is prepared by adding a solution of 100 parts of the hydriodate of potash to a solution of 75 parts of the acetate of lead. In the preceding section I have given a diagram illustrative of the mutual decomposition which takes place.

The ioduret of lead is a fine yellow powder, partially soluble in acetic acid and in alcohol; insoluble in cold, but perfectly soluble in hot water, from which it crystallizes in fine hexagonal plates. One hundred parts of this compound consist of 54.9. iodine, 45.1. lead. The discovery of the solubility of the ioduret of lead was first made by M. Polydore Boullay in 1827. It then, however, attracted but little attention; and was completely forgotten when M. Caventon again casually noticed the circumstance, and placed it prominently before the public.

The ioduret of lead has very recently been subjected to an elaborate analysis by M. Henry (fils), "*Journal de Pharmacie*, Mai 1831," and 100 parts found to consist of iodine 54.9, lead 45.1.

When the ioduret of lead precipitated in the cold is acted on by boiling water, it is dissolved with the exception of a minute whitish grey residuum, which appears to consist of an ioduret of lead with excess of base. Various experiments also show that the composition of the pulverulent ioduret is by no means constant in its nature, occasionally containing free iodine and occasionally an excess of lead. The crystallized product deposited from warm water, should therefore alone be employed for pharmaceutical or medicinal purposes.

I have no doubt but that this compound will be adulterated very extensively. The action of boiling water, however, affords a ready mode of ascertaining its purity.

4.—*Iodurets of Mercury.*

Iodine forms two combinations with metallic mercury: a proto and deuto-ioduret; the first of a fine canary yellow, the second of a beautiful carmine colour.

The first of these compounds is prepared by adding a solution of the hydriodate of potash to a solution of a *proto* salt of mercury. The second is made by adding the hydriodate to a *per* salt of the same metal.

In the preparation of the proto-ioduret by double decomposition, great care is necessary that the salt of mercury should contain no per-oxide, otherwise a deuto-ioduret would be formed, a compound analogous in its properties to the bichloride or corrosive sublimate. By observing the following directions, however, the proto-ioduret will be obtained perfectly pure.

Dissolve, without applying heat, a sufficient quantity of pure mercury in one part of nitric acid diluted with three parts of distilled water, and add mercury until no more be dissolved. A proto-nitrate of mercury is thus formed which frequently shoots into a mass of white crystals. Any excess of metallic mercury is to be separated by inclining the vessel and allowing it to run off, the solution containing the crystals is then to be diluted with distilled water until they are perfectly dissolved; a pure proto-nitrate of mercury is thus obtained, the formation of the per-nitrate being only occasioned by the application of heat and the use of too concentrated nitric acid.

Hydriodate of potash is to be added to this solution as long as any precipitate occurs. Filtration is then to be performed, the matter remaining on the filter to be well washed with distilled water, and dried in a water bath. As

thus prepared, the proto-ioduret of mercury is a fine yellow powder, quite insoluble in water at any temperature.

M. Berthemot has published, in the *Journal de Pharmacie* for last August, another method of obtaining this compound, namely, by triturating mercury in the necessary proportion with iodine and *alcohol.* Having ascertained that the atomic constitution of the proto-ioduret of mercury is mercury 61.60 to iodine 38.40, he weighs these proportions of each ingredient, and triturating them together in a glass mortar, adding a few drops of strong alcohol from time to time, deuto-ioduret of mercury is first formed, but is soon reduced by the excess of iodine to the state of proto-ioduret. I should not, however, recommend this process, because the trouble of the manipulation is comparatively so great, that sometimes it would undoubtedly be carelessly performed, and a powerful poison substituted for the desired preparation.

The *deuto-ioduret* is prepared by decomposing a solution of corrosive sublimate by the hydriodate of potash. The deuto-ioduret being exceedingly soluble in excess of either of these salts, it is necessary to add the hydriodate drop by drop. The first addition occasions a cloud of a yellow and salmon colour, subsequent additions deepen the tint to a more decided yellow, and at length when the sufficient quantity is dropped in, the fine carmine precipitate is copiously formed. During the successive additions the mixture should be freely agitated. Filtration, washing, and drying, should then be performed.

The deuto-ioduret thus prepared, forms one of the most splendid colours that chemistry affords; it is insoluble in water at any degree of heat. It is composed of mercury 44.51, iodine 55.49.

M. Berthemot has also proposed to prepare this compound by triturating together the necessary atomic weights of its ingredients moistened with alcohol. The colour of the product thus obtained is, however, by no means so brilliant as in that procured by double decomposition; but the compound being almost exclusively intended for external use, the inferiority of colour and the greater trouble in the preparation will prevent the general adoption of M. Berthemot's method.

THE END.

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